Crashing search party Experts warn that Microsoft's desktop search efforts raise new security worries. **PAGE 8.**

IBM on the prowl Big Blue has been snapping up small software firms at a steady clip. **PAGE 21.**

NetworkWorld

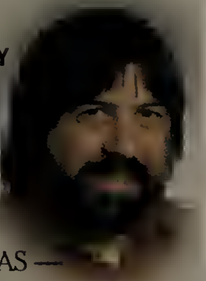
The leader in network knowledge ■ www.nwfusion.com

August 9, 2004 ■ Volume 21, Number 32

A Wider Net

Hack . . . hack back . . . repeat

At DefCon, a game of virtual capture the flag keeps eight teams at the keyboard for 36 hours.



■ **BY RODNEY THAYER, NETWORK WORLD LAB ALLIANCE**

LAS VEGAS — Capture the flag might be only a game, but it was serious business at DefCon, the world's largest annual computer hacker convention. For 36 straight hours, eight teams of experienced hackers and serious security professionals played predator and prey as they tried to hack into competitors' networks while defending their own.

From my front-row seat as a member of the winning team, Sk3wl of R00t (hacker slang for "School of Root," where "root" refers to gaining administrator access to a system), I got a

See DefCon, page 12

Trojan hits Windows PDAs for first time

■ **BY ANN BEDNARZ**

After finding the third malicious program targeting wireless devices in fewer than 60 days, security specialists are warning that it's only a matter of time before attackers launch a serious attack against mobile phones and PDAs.

Kaspersky Labs last week reported the first incidence of a Trojan horse that targets certain Windows-based handheld

See PDAs, page 13

Fed up hospitals defy patching rules

HOSPITALS IN A BIND UPDATE

■ **BY ELLEN MESSMER**

Amid growing worries that Windows-based medical systems will endanger patients if Microsoft-issued security patches are not applied, hospitals are rebelling against restrictions from device manufacturers that have delayed or prevented such updates.

Moreover, the U.S. Food and Drug Administration (FDA) is encouraging the aggrieved hospitals to file written complaints against the manufacturers, which could result in devices losing their government seal of approval.

If hospitals encounter a patch-related issue "that may lead to death or serious injury, they must file a report," says John Murray, the FDA's software and electronic records compliance expert. Murray acknowledges that healthcare organizations might be reluctant to do this "because they don't want the manufacturer mad at them."

Device makers such as GE Medical Systems, Philips Medical Systems and Agfa say it typically takes months to test Microsoft patches because they could break the medical systems to which they're applied. In some instances, vendors won't authorize patch updates at all.

See Patches, page 16

Forsee talks telecom

Sprint CEO defends AT&T deal, rips Ebbers.

Q&A

While the telecom market as a whole still struggles to find footing, the terrain looks somewhat more stable under Sprint. CEO Gary Forsee recently sat with Network World *Senior Editor Denise Pappalardo and Associate News Editor Paul McNamara in Forsee's office in Overland Park, Kan., to talk about the company's strategy, industry consolidation and a topic that touched a nerve with the generally measured telecom executive: the legal fate of former WorldCom boss Bernard Ebbers.*

"We are not concerned that the [AT&T wireless] deal will disrupt our own plans for our business customers."

Gary Forsee, CEO, Sprint

RON BERG

One of Sprint's biggest differentiators is wireless. Yet the deal you signed with AT&T in May lets AT&T in on that differentiator. What's in this for Sprint?

The advantage for Sprint is that we will be bringing new customers on to our network while reducing our acquisition costs. If there is any risk in enabling a company that historically has been one of our

See Forsee, page 52

NEWSPAPER ■ $5.00

PHOTO TIM EVANS

Word Up

How do you set your spam filters to block words like Viagra when you're a drug company or a hospital and the Viagra mail has to get through?

Page 39

Dan Lukas of Aurora Health Care offers his tips for outsmarting the spammers.

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NetworkWorld

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Pieter Schoehuijs, IT director at Flowserve, has gotten a handle on his company's many contracts via a homegrown management application.

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Word up

IT execs at spam-magnet companies come up with creative ways to block spam while keeping the legitimate Viagra/weight-loss/investment opportunity e-mails flowing. **Page 39.**

CLEAR CHOICE TEST

Managing digital certificates

CoreStreet offers an effective but complex way to manage digital certificates. **Page 41.**

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Exclusive

Network World Fusion Radio: Wireless WAN access and the enterprise
In-Stat/MDR just released a survey that looks at wireless WAN services and usage. Becky Diercks, principal analyst for wireless data and Internet at In-Stat/MDR, discusses the findings. Stream it or download it for later use. **DocFinder: 3235**

Fitting OCSP into your certificate infrastructure
As part of our review of CoreStreet's Real Time Credentials (page 41), head online to learn how you can fit Online Certificate Status Protocol into your digital certificate infrastructure. **DocFinder: 3241**

You've Got the Power Survey
Spread your influence by casting your votes in this first-of-its-kind survey gauging crucial questions of industry power, from executive hairstyles to comedic appeal. **DocFinder: 3236**

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Are you making what you're worth? Input some details about yourself, and we'll tell you if you earn as much as your peers. **DocFinder: 3237**

Call for Nominations: 2004 Network World Reader-Recognition Awards
Send in your choices for the 2004 Extended Enterprise Innovator Award and the 2004 User Excellence Award. **DocFinder: 2747**

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Columnists

The Wireless Wizards
The future of public WLAN hot spots
The Wizards help a reader who asks: "What's the future of free hot spots at hotels, restaurants, etc.?" **DocFinder: 3238**

Small-Business Tech
Tough love from Microsoft
The new Windows XP security upgrade could trash your systems. Columnist James Gaskin recommends two back-up options. **DocFinder: 3239**

HomeBase
Ulfelder unplugged, Part 2
Our hero, Columnist Steve Ulfelder, gets his WLAN up and running with a little help. **DocFinder: 3240**

Seminars and events

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The Webcast Newsletter brings you information on Webcasts on Network World Fusion — your 24-7 source for the latest solutions and strategies, with links, resources and answers you need. Covering topics such as security, applications and wireless, our Webcasts are highly focused, single-topic briefings from experts in technology. Sign up today. **DocFinder: 2542**

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NewsBits

Audit raps Cisco's 'wired' contract win

■ Findings of collusion between the city of San Jose and Cisco over an $8 million network installation contract is causing controversy for the network vendor. According to stories published in the *San Jose Mercury News* last week, an audit by the city found that Cisco was the only vendor considered to build a converged IP voice and data network in San Jose's new $388 million city hall. As a result, only resellers of Cisco gear were allowed to bid on the project. Now the city will have to restart the bidding process for the project and give Cisco competitors a chance. A Cisco spokeswoman told the *Mercury News* that the vendor is cooperating fully with the city's audit and investigation. The newspaper also reported that a major sticking point with the Cisco deal was that the Cisco IP telephone system would not be compatible with other vendors' products, forcing the city to only buy Cisco gear in the future — a violation of city requirements on technology projects.

FCC targets wireless spam . . .

■ The FCC voted last week to outlaw all unauthorized text messages to mobile phones and pagers unless the owner has given permission. Congress required the FCC to adopt rules for mobile-phone spam when passing the CAN-SPAM law last year. CAN-SPAM lets spammers send unsolicited commercial e-mail to computer e-mail accounts until the recipient opts out of receiving e-mail from that sender, but the FCC's action last week requires that commercial entities sending text messages to mobile phones and pagers get customers' opt-in permission before sending messages. Commissioners argued mobile-phone spam is harmful to consumers because they often have to pay for the time it takes to delete the message. Violators of the FCC regulations would be subject to penalties under CAN-SPAM, which allows fines of up to $6 million and up to a year in jail for some spamming activities.

. . . while letting law enforcement tap VoIP

■ The FCC last week took the first step toward requiring VoIP providers to comply with law enforcement wiretapping requests. The FCC voted to begin an examination of the policies needed to ensure that VoIP providers comply with the 1994 Communications Assistance for Law Enforcement Act, which lets U.S. law enforcement agencies listen in on telephone conversations. The commission's decision included a tentative finding that communications services offered over broadband pipes, including VoIP, are subject to CALEA requirements to comply with law enforcement wiretap requests. The tentative rules also would cover managed communications services offered over broadband connections, including managed instant message or video services, says Ed Thomas, chief of the FCC Office of Engineering and Technology. Nonmanaged peer-to-peer services, including consumer-grade instant-messaging services and noncommercial VoIP services, likely would not be subject to CALEA regulations under the proposed order, FCC staff members say.

COMPENDIUM

Know your enemy

"How to Bypass Most Firewall Restrictions and Access the Internet Privately" shows people how to evade all those firewalls and proxies and stuff you keep putting on your network so they can browse porn or whatever.

Read more at www.nwfusion.com, DocFinder: 3250.

■ TheGoodTheBadTheUgly

Thanks for the IETF. The Internet Society has named Phill Gross as this year's winner of the Jonathan B. Postel Service Award in recognition for his role as co-founder of the IETF in 1986. Steve Crocker, head of the award committee, said: "Many of the IETF's current structures, including working groups, technical areas, proceedings and Internet drafts came about thanks to Phill's dedication and passion for the Internet standards area." Gross is director of academics and technology for the Northern Virginia ECPI College of Technology.

Buddy system. Daniel Drath, a vice president with Teenage Research Unlimited, a Northbrook, Ill., market research company, commented last week on the sometimes unusual network habits of teenagers: "They can have 200 names on a buddy list, but they've actually met only a few of those." ➤

Tiffany, your BUDDIES are here!

We tried to tell ya. We ran a Tester's Challenge story in November, (www.nwfusion.com, DocFinder: 3251), calling for security product vendors to shut off unsecure SSH1 connections. Vendors pooh-poohed the argument, but last week Juniper issued a vulnerability advisory regarding this very type of access for one of its NetScreen firewalls.

AOL buys challenge/response spam blocker

■ AOL has snapped up Web-based e-mail company Mailblocks to improve its own e-mail services with greater anti-spam protection, mail management and interface improvements, it said last week. AOL did not specify the terms of the deal but said the buy of privately held Mailblocks was aimed at gaining its challenge/response technology for fighting spam and authenticating legitimate e-mail senders. Mailblocks' technology works by whitelisting everyone in a user's address book as a legitimate e-mail sender and challenging any unknown senders. When a user receives an e-mail from an unknown sender, the service holds the mail and sends back an automatically generated message, asking the sender to type in the seven-digit code they see on the screen. Once the sender enters the code, the message is delivered to the recipient, and that sender will not be challenged again.

SP2 for Windows XP days away

■ Microsoft expects to finalize work on Service Pack 2 for Windows XP in the coming days. The much-anticipated security-focused update should be available to users shortly after that, a company spokesman said last week. Microsoft had hoped to wrap up work on SP2 last week. However, the plans changed to ensure that the software meets quality standards, the company said. The delay of the release turned into a public relations snafu for Microsoft. Apparently unaware of the change of plans, Microsoft Australia last week issued a statement announcing the release. The statement was later retracted, with company officials saying the announcement was premature. SP2 will be available through downloads, retail distribution and free CDs, and on new PCs. For most users, the download will be between 80M and 100M bytes in size, according to Microsoft. To facilitate the large download, Microsoft also is updating its Windows Update service.

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SBC

Digging into Microsoft's search efforts

Desktop could be at security risk under universal search plans, experts warn.

BY JOHN FONTANA

Microsoft's developing desktop search technology will have to be complemented by a well-defined security framework, or it will become a nightmare when integrated into a corporate collaboration environment, experts say.

The company recently showed off its newest search technology, Local PC File Search, which indexes every keyword and number stored on a hard drive. With that index a user can search his hard drive for such things as e-mail, documents, contacts and calendar items.

Developed collaboratively by Microsoft's Office, Research, Longhorn and Knowledge Interchange teams, the technology is designed to help Microsoft in its battle with Google, Yahoo and other search companies to attract consumers. But the technology also is destined to be part of Microsoft's enterprise platform.

Experts say local search, which Microsoft is expected to debut next year, is a necessary tool in a day and age where 40G-byte hard drives are the norm. But the downside is that such an index creates a security and privacy risk if used as part of an information-sharing or integrated-search environment that includes multiple users, network servers and intranet sites.

"If Microsoft isn't planning to look at this as a security framework built into the platform, it will be a loaded rifle," says Peter O'Kelly, an analyst with Burton Group. "People will find that they are sharing things that they hadn't intended to share." It's not just about search, O'Kelly says: It's about everything bad that can happen after data is compromised.

For years Microsoft has been building toward such a universal search technology, which will see its first incarnation next year with the Yukon technology in SQL Server 2005. That eventually will expand with Yukon support in Exchange Server before reaching Longhorn and the WinFS universal file system, which Chief Software Architect Bill Gates calls his Holy Grail because it provides a unified repository for all data.

"The issue is you better make sure you protect that index, you better make sure there is no path to that index" for anyone other than the PC's owner, says John Pescatore, an analyst with Gartner. "Once you start to index everything you start to expose things that no one human could find on their own."

Microsoft's search

Microsoft is building toward a universal file system that will let users search for information and documents across local drives, network drives and the Web. Here is a look at some of the technology under development.

Product	Capabilities	Expected release
SQL Server 2005	Yukon technology provides search/query features that will extend to the next version of Exchange.	2005
Local PC File Search	Builds a searchable index of everything on a local hard drive.	2005
Longhorn	WinFS. Bill Gates calls it his Holy Grail, a universal file system that extends search from the local PC to the Web.	2006 (client) and 2007 (server)

The index could become a treasure-trove for hackers who target Microsoft's client operating system. Today's Windows desktop file sharing technology already has proven it can be a security risk.

Pescatore says any search technology that peeks into a local hard drive will have to be corralled by an "opt-in" model that lets users pinpoint what is exposed and what is hidden.

That is just the technology currently under development by desktop search vendor X1. The company is a competitor to Lookout Software, which Microsoft acquired last month.

"We are working on indexes that can be subscribed to," says Mark Goodstein, founder of X1. He says the company put X1, which indexes e-mail, files, attachments and contacts, on its network with an index to Temp Folders stored on local PCs. Goodstein says the test revealed that even with only one folder exposed, sensitive data including salary information was available on the network.

"This data was protected before just because it was opaque. Once you create an index you find some interesting things," Goodstein says.

He says the issue needs a solution today because companies are asking for integration of X1 with collaboration tools such as Groove and Microsoft's SharePoint Services.

Microsoft already has developed some protection features such as in SharePoint, which lets users set up protected file shares, and with digital rights management technology to protect documents and data. The vendor also is building an identity management platform around Active Directory for sophisticated authentication and authorization access controls.

"I don't think these security issues are any worse than they are today with search," says Peter Pawlak, an analyst with research firm Directions on Microsoft. "Sure there is a huge security aspect to desktop search, but Microsoft is putting too much work into security to be sloppy about this."

The issue that really concerns Pawlak is improving the overall search features in Windows, which he calls primitive compared to the concept of Longhorn's WinFS.

"I'm more worried if it will be fast enough, capable enough," he says. ■

Intelliden gobbles up competitor

BY DENISE DUBIE

Management software company Intelliden last week said it has acquired competitor Gold Wire Technology in a deal that will result in products that marry configuration and compliance management.

Industry watchers say the combined company, in turn, might make an attractive acquisition target for a larger vendor.

More online!

Which new technologies best improve network performance? Which breakthroughs in caching and compression free up WAN capacity? Find out by listening to highlight's from Jim Metzler s keynote presentation on effective network management.

DocFinder: 1542

"All major management vendors have made prominent moves to focus on configuration and change management, [as with] HP's Novadigm and Consera acquisitions and BMC's Marimba buy," says Glenn O'Donnell, program director at Meta Group. "There remains lots of room for additional [merger and acquisition] activity."

Privately held Intelliden, which describes itself as cash flow-positive but reveals little else about its financials, declined to say how much it paid for Gold Wire, a Waltham, Mass., company that started in 1997 and has about 20 employees.

However, Intelliden did give some insight into how its products will be blended with Gold Wire's and promised a more detailed road map in 60 days.

"Gold Wire's technologies will round out three of our four product pillars," says Dale Hecht, Intelliden's president and CEO.

He says the company's auditing engine will benefit from Gold Wire network compliance capabilities; its configuration and access management products will take advantage of Gold Wire's single sign-on features; and that the two companies also will integrate their security products into Intelliden's R-Series products. Intelliden also sells provisioning software.

Gold Wire's appliance-based packaging of its software also gives Intelliden customers an alternative to Intelliden's software offerings, Hecht says.

Intelliden, based in Colorado Springs, says it has 25 customers, while Gold Wire has 15.

The combined company's competitors include Alterpoint, Rendition Networks and Voyence in what is seen by industry watchers as a growth market, given that research shows more than 60% of network and performance failures are because of configuration errors.

"Configuration management can offer instant results by automating manual tasks and reducing errors," says Dennis Drogseth, vice president at Enterprise Management Associates. "Configuration also ensures data integrity, which is at the basis of compliance."

Intelliden officials argue that adding Gold Wire's compliance management tools could give Intelliden's configuration management products an edge over competitors'. Intelliden and Gold Wire already partner with IBM and HP to supplement their product lines.

"More than 50% of our customers signed on with compliance as the driver," says Jonathan Wolf, a Gold Wire co-founder. Intelliden says it signed a new customer last week based on the availability of Gold Wire's compliance features in Intelliden's product offerings. ■

Correction

■ The story "Business DSL more popular than flashy" (Aug. 2, page 25) misidentified Bruce McGregor, analyst, broadband services, of Current Analysis.

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Campuses face complex regulations

Changing landscape puts services — and revenue — in question.

BY JOHN COX

Hot FCC issues for campuses

VoIP: Which services will be regulated, and priced, as traditional phone services, and which given wider leeway as information services?

E911 services: Will the FCC issue time-specific mandates to implement pinpoint location services for emergency calls? Campuses are still left to work out implementation details with state authorities.

WLAN-cellular interoperability: Emerging issue on how to handle voice calls that span WLANs and cellular nets; ACUTA organizing to address this with carriers and the FCC.

CHICAGO — Federal uncertainty over telecom policy has left network executives in higher education pondering cost trends, technology bets and campus infrastructure options.

But the growing availability of broadband access, coupled with the surge in commercial VoIP services, is likely to force the FCC to take action on at least some issues in the next 12 months, according to Jeff Linder, a specialist in telecom regulation and a partner in Wiley, Rein & Fielding, a Washington, D.C., law firm.

He spoke at last week's annual conference of the Association for Communications Technology Professionals in Higher Education, still known by its original acronym, ACUTA.

Key issues include how and to what degree IP-based telecom services will be regulated and priced; the decline in college revenue from reselling phone service to students; and federal and state roles in the emerging question of wireless LAN (WLAN) and cellular interoperability.

ACUTA goes on the offensive

In the past two years, ACUTA has expanded its Washington, D.C., presence in part because of the changes taking place in telecom and the emergence of IP networks, said Walter Czerniak, association president of the organization.

More importantly, the group has shifted from a defensive strategy, which ensured that rule changes don't hurt institutions, to a proactive strategy, by engaging the FCC staff on a range of issues, often in partnership with other higher education groups.

"It's gotten to the point where the FCC will now call and ask us what we think of some new vendor proposal," Czerniak said.

Linder is emphatic that ACUTA and similar small but focused groups can have an effect on FCC deliberations.

"ACUTA brings real interests and expertise on specific issues," he said. "Instead of submitting a 200-page document that vaguely covers all points, you file a five-page document that says, 'Here's our experience in this area, and what it means.' The FCC staff will [actually] read these."

ACUTA's involvement in policy matters is not an academic exercise. Colleges and universities have long had a lucrative business reselling phone service to students.

That revenue stream, coupled with telecom charge-back policies to college departments, has funded campus telecom infrastructures for years.

But that revenue is evaporating as more students arrive on campus with cell phones, as VoIP and other IP-based carrier services proliferate, and as competition continues to hammer profit margins on phone service razor thin.

"ACUTA encourages the expansion of IP-enabled services," said Randal Hayes, chairman of ACUTA's Legislative/Regulatory Affairs Committee. "But in transforming the communications infrastructure from switched to IP, you have to address the new technology in a way that makes sense, but without causing the old plant to fall apart."

"VoIP is a disruptive technology," Linder told his ACUTA audience. "It's platform-independent: You don't need to control the underlying network to offer VoIP [and related] services. It really is becoming reality, and very quickly."

That's because many of the technical problems have been solved, and the spread of broadband access to the public network makes VoIP services feasible for a mass market. But it's unclear how these trends, and the FCC's response, will affect campuses.

VoIP rate questions

The FCC is examining the implications of exempting IP-based telephony services from fees for network access, Universal Service and other traditional charges.

Linder said there seems to be an emerging consensus that VoIP is clearly an alternative to traditional voice calls and can be treated in a similar way, with some traditional access fees.

"In about a year, you'll get a more rational rate structure," Linder predicted. "But it's a political nightmare for the FCC. And it's immensely complicated. The FCC will be forced to act on this."

A closely related question is whether the states will regulate VoIP and other emerging services that use their traditional regulatory structures and assumptions. The FCC is under growing pressure to stake out IP services as a federal domain, Linder said.

Another area of confusion for some campuses is the need to ensure that students can get emergency service. The FCC mandate for Enhanced 911 services, to provide pointpoint accuracy to locate cellphone emergency calls, is an ongoing area of confusion for some campuses. Schools have to ensure that residential students can get E911 serivce.

The FCC still struggles with the question of whether to fix a deadline for a resolution, or let carriers, IP service providers and equipment makers make their own progress, Linder said.

In the meantime, campuses are left pretty much on their own to work out E911 arrangements with state authorities. South Carolina, for example, so far has not adopted its own E911 standard, says Heather Mitchel, telephone system and campus intranet administrator at Wofford College, a small school of about 1,100 mainly residential students in Spartanburg, S.C. "Without that, it's harder for us to ensure students can get help" on a timely basis, she says.

"ACUTA advocates close partnerships between campus public safety and local [external] jurisdictions," ACUTA's Hayes said.

A just-emerging area of technical and regulatory confusion is voice calls that might traverse WLAN and cellular networks. Products are coming out (see www.nwfusion.com, DocFinder: 3255) but there are no standards or rules for interoperability.

ACUTA's Czerniak said the association has just begun internal talks about this subject and will form a committee or working groups to engage carriers and the FCC. ■

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DefCon

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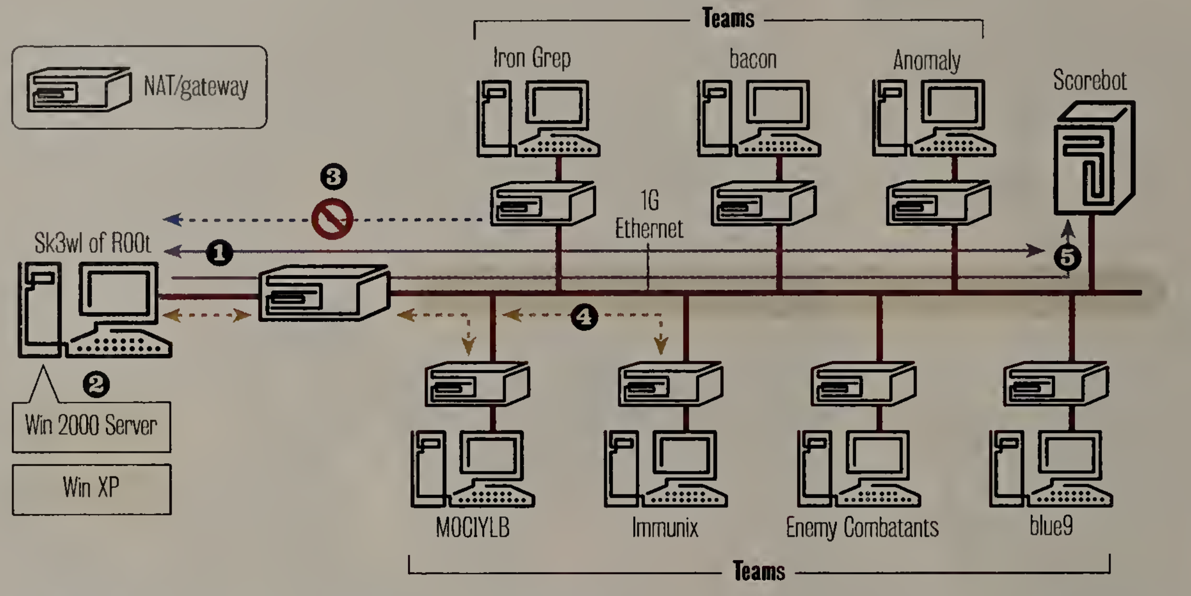
Capture the flag, hacker-style

At DefCon, teams of hackers and security professionals play a game of virtual capture the flag, in which they attempt to bring down competitors' network resources while defending their own from the latest and greatest hack attacks. All teams start with the same version of Windows and an identical set of network applications. Here's a winning strategy:



① Keep pipeline open to Scorebot.

② Harden Windows servers to protect against attacks.

③ Defend network against attacks.

④ Probe enemy machines for weaknesses, then steal virtual flags (data strings).

⑤ Send data strings to Scorebot.

bird's-eye view of how new — and not so new — attacks could be launched and thwarted.

Each qualified team playing the game — organized by a Seattle security community group called the Ghetto Hackers — controlled a pair of Windows machines running a variety of network and Web-based services that were connected to each other and a central scoring mechanism called the Scorebot via a Gigabit Ethernet network (see graphic). Rest assured, this hacker network was not connected to the Internet.

As soon as the doors to the secluded hacker playground disguised as a hotel ballroom were opened at 10 a.m. July 30, the air was tense in this crowded room. The game scenario and the legitimately purchased Windows images were presented to participants two hours before the official noon start time. How would you like to have to lock down two Windows boxes in just two hours as you started to recognize that there were world-class exploit developers in the room — and on your network?

A team scored by attacking rivals' servers and stealing flags (data strings stored within the servers). The successful hacker then presented the stolen flags to the scoring system for credit. The overall score was a combination of credit for attacking other teams' servers and successfully defending your own services. Penalties were issued for excessive consumption of bandwidth, so simple port scans and brute force attacks were not used, and denial-of-service attacks were forbidden.

In the middle of the room sat the Ghetto Hackers' gear, necessary for keeping the game within bounds and blasting loud techno music for the entire 36-hour ride. We'd trained for the competition in small conference rooms with similar tunes blaring as white noise to desensitize. But by the time it was 2 a.m., and you were staring at a network trace flying by on a screen, you noticed that your heartbeat and your breathing synchronized with the music and the packet traffic. At that point, it was time to take a walk.

At the beginning everyone was organized with their supplies. Our cooler was stocked with ice and Coke. As time dragged on, people started bringing in food and drinks. At first we were organized and sent out someone for bread and cold cuts. But by the middle of Day Two we gave up and started ordering pizza. We stuck with soda for the most part, but as the contest wore on, a beer or two appeared. As we scanned the room (discreetly, of course) we saw the other teams behaving the same way if not more so. One team had a steadily draining bottle of Southern Comfort on top of its server.

The Ghetto Hackers' full-length equipment rack was ornamented by a large, red, wooden arch in the style of a Japanese archway complete with Asian script. Our Japanese language expert slunk over for a closer look and determined the writing on the wall to be complete gibberish, with no hidden message to help us crack the code.

Each team carefully arranged its equipment — everything from laptop Macs to Cisco switches, some piled 3 feet high on the allotted two tables — around the periphery of the room. Teams were supposed to have a maximum of 15 members, but no one stuck to that upper limit as the flow in and out of the room easily boosted each roster to more than 20 people.

The ground rules I agreed to dictate that I not divulge individuals' identities. But in general terms I can say the teams included at least two CTOs; security professionals from Ernst & Young, AOL and the University of California at Santa Barbara; and well-known and unknown hackers. Additionally, at least four teams had members hailing from the U.S. Department of Defense.

We mostly kept to ourselves and minimized visible screen space to avoid becoming vulnerable to "shoulder surfing" or other forms of spying.

You also had to do some reconnaissance to sniff out any secret deals being cut to share or trade information among teams. Think "Survivor," when it was good.

There wasn't exactly a book on how to organize your team or set strategy for this sort of thing. But our winning strategy as a team was organization. We organized everything from a rotating "cat nap" schedule to divvying up jobs along lines of expertise.

Because offense was 80% of the overall score, you had to maintain support for your front-line attackers. The trick was to not ignore your defenses. If your defenses slipped, other teams could get in and score. As the Ghetto Hackers pointed out at the awards ceremony, we were solid attackers — not significantly better than other teams — but we had very good defense and were able to keep other teams from stealing flags from us.

Most attacks we saw were levied against information in the database. Someone would figure out how to run the WIKI (a piece of server software that lets users freely create and edit Web page content using any Web browser) and do some obscure set of queries that would reveal flag data. Or someone would go into the Multi-User Dungeon, online game environments that use a great deal of bandwidth, and figure out if you walked north through the forest just the right way you'd be able to pick up a flag.

We saw many failed attacks. Someone tried to buffer overflow the Web server with 800,000-byte null packets. Someone else tried to go after SNMP services to gain entry. Teams even attempted to capture their incoming Scorebot traffic and replay that same traffic in the direction of our machines in the hopes that our services would mistake them for the actual Scorebot and give up flags to them.

If I were to apply my experiences to a more everyday situation than what was taking place at the off-the-strip Alexis Park hotel, five points would bubble to the top of the security cauldron:

- Unsecure, unnecessary services — such as terminal services and SNMP — are running on most Windows machines. You've got to take care to shut down or firewall all unnecessary ports used by these services.
- Passwords are revealed frequently. To defend against this, periodically change all passwords, including those that give access to Web services and databases.
- Customized Web applications typically leak critical information. To defend against this, applications must be modified so they do not have commands that give too much information without proper authorization or let users modify objects out of turn.
- Unmonitored services are dangerously open to attack. Watch your logs like a hawk.
- Hack attacks happen. Be very, very afraid.

Thayer is principal investigator with Canola & Jones, a security research firm in Mountain View, Calif. He can be reached at rodney@canola-jones.com.

Acknowledgements

Thanks to the Ghetto Hackers for running a great contest. They put together a complex game and made it run under very stressful conditions and it worked great. Thanks also to Sk3wl of R00tfor letting me join in.

NW Lab Alliance

Thayer also is a member of the Network World Lab Alliance, a cooperative of the premier testers in the network industry, each bringing to bear years of practical experience on every test. For more Lab Alliance information, including what it takes to become a partner, go to www.nwfusion.com/alliance.

Other members: Mandy Andress, ArcSec; John Bass, Centennial Networking Labs, North Carolina State University; Travis Berkley, University of Kansas; Jeffrey Fritz, University of California, San Francisco; James Gaskin, Gaskin Computing Services; Greg Goddard, EDS; Thomas Henderson, ExtremeLabs; Miercom, network consultancy and product test center; Christine Perey, Perey Research & Consulting; Barry Nance, independent consultant. David Newman, Network Test; Thomas Powell, PINT. Joel Snyder, Opus One.

More online!

Read more on Rodney Thayer's thoughts from DefCon. Also find out Columnist Winn Schwartau's take on the convention.

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Oracle lax in response to security flaws

■ **BY JAMES NICCOLAI**

Oracle has acknowledged the existence of security holes in its database software and said it plans to issue a security alert soon. The U.K. security expert who found the holes criticized Oracle's conduct, saying the company has sat on patches for about two months that would fix the holes.

David Litchfield, managing director of Next Generation Security Software, says he has found 34 security vulnerabilities in past and current versions of Oracle's database software, at least one of which could let a hacker gain control of a company's database remotely without a password.

Litchfield says he notified Oracle of the vulnerabilities in January and says the company told him two months ago that it had prepared patches to repair them. However, Oracle has not released the patches because it is in the midst of introducing a new system for distributing security fixes to customers, he says.

"The way they should do it is to run the old system [for issuing patches] until the new system is ready for use," he says.

Two weeks ago, Litchfield mentioned the vulnerabilities in a presentation at the Black Hat computer security conference in Las Vegas. They were first reported last week by *The Wall Street Journal.*

Oracle initially would not confirm or deny the vulnerabilities, saying only that it takes security matters seriously. Later it appeared to confirm the flaws in a brief statement, part of which says: "Oracle has fixed the issues discussed in *The Wall Street Journal* and will issue a Security Alert soon."

"Any time there's this many vulnerabilities, I am concerned about it," says Brent Siler, director of IT for EXP Pharmaceutical Services in Fremont, Calif.

"Luckily for us, we do have intrusion-detection systems that we've been able to go out and modify," he says.

Niccolai is a correspondent with IDG News Service.

PDAs

continued from page 1

devices. Backdoor.WinCE.Brador.a is a backdoor utility that, security vendor F-Secure says, "copies itself to the startup folder, mails the IP address of the PDA to the backdoor author and starts listening to commands on a TCP port. The hacker can then connect back to the PDA via a TCP port and control the PDA through the backdoor" (see "How Brador Works," below). It can infect Pocket PC devices running Windows CE Version 4.2 and later, and newer versions of Windows Mobile.

The discovery of the Brador Trojan horse comes less than three weeks after security experts identified Duts, the first proof-of-concept virus to target the Pocket PC platform; and not quite two months after the discovery of Cabir, a proof-of-concept worm that spreads via Bluetooth. Duts can infect devices running Pocket PC 2000, Pocket PC 2002 and Pocket PC 2003. Cabir can infect Bluetooth phones running the Symbian OS.

"We were certain that a viable malicious program for PDAs would appear soon after the first proof-of-concept viruses emerged for mobile phones and Windows Mobile," Eugene Kaspersky, head of anti-virus research at Kaspersky Labs, said in a statement.

Whereas Duts and Cabir are conceptual viruses that contain no payload, Brador is a fully functional Trojan horse with the complete range of destructive functions typical of other backdoors, according to Kaspersky Labs. For example, the program can respond to commands to upload or download files.

"Backdoor.WinCE.Brador.a is most probably already in the wild, and it's absolutely viable," says Alexey Zernov, a spokesman for Kaspersky Labs. "This backdoor wasn't written for demonstration but for a specified purpose: to penetrate PDAs, getting full control of the infected mobile device."

A group called 29A is responsible for creating Duts and Cabir. According to Kaspersky Labs, a Russian malicious code writer created Brador with the text: "Get to work, folks, the Pocket PC market will soon explode."

Once in the wild, Brador could prey upon the growing numbers of wireless-enabled handheld devices corporations are deploying to run IP services, connect to the Web and provide remote access to corporate network resources.

Mobile malware

Malicious programs targeting mobile devices in the past two months include:

Name:	Alias/aliases	Description	Reported
Brador	Backdoor.WinCE.Brador.a	A backdoor that lets hackers take control of PDAs. It can infect Pocket PC devices running Windows CE 4.2 and later, and newer versions of Windows Mobile.	Aug. 5
Duts	WinCE/Duts, WinCE.Dust, Dtus	Proof-of-concept virus for the Pocket PC platform. It can infect devices running Pocket PC 2000, 2002, 2003.	July 17
Cabir	SymbOS/Cabir.A, EPOC/Cabir.A	A worm capable of spreading via Bluetooth. It can infect mobile phones running Symbian OS.	June 14

But exactly how damaging such attacks could be is debatable.

Symantec categorizes Brador as a Level 1 threat in a range from 1 to 5, with 5 being the most severe.

The threat of vandalism and information leakage exists, but a compromised cell phone isn't likely to knock over an entire corporate network, says Rodney Thayer, a private network security consultant at Canola & Jones and a Network World Lab Alliance member. "I'm not sure I would have put it at Level 1, but I wouldn't be running around crying we have an immediate, incredible crisis either."

Data access is a concern, says Joel Snyder, a senior partner at consulting firm Opus One and a member of the Network World Lab Alliance. When users access corporate resources over the Internet via a mobile device, it's important that IT managers restrict their network access, Snyder says.

Offsetting the threat to mobile devices is the fact that they're not continuously connected to the Internet. Rather, users tend to connect for a few minutes every few hours, which makes them less attractive to Trojan horse writers than broadband-connected PCs, for example, Snyder says.

But that could change. "In two or three years, when power requirements for wireless LANs are resolved, we may well see someone with a Pocket PC-sized machine that's wirelessly connected all day long," Snyder says. Securing mobile devices is going to become a bigger issue as they become more connected, he says.

Mobile devices are vulnerable to attack for multiple reasons, Snyder says.

For one, handheld devices don't have a lot of computational resources to process or capacity to store security features. "Adding a lot of password screens and authentication stuff might require resources that are just not available in those devices," he says.

So companies tend to forego really strong authentication systems, such as digital certificates, because of the computational burden.

Mobile device developers also aren't accustomed to stringent security requirements, Snyder says. "It's not part of their mindset because they never lived in this hostile environment."

On the plus side, the growing number of attacks is putting emphasis on the need to pay more attention to mobile devices.

Creating and enforcing usage policies is critical. A little more vigilance is warranted, Thayer says.

The problem is, users perceive mobile devices as their own and download with abandon. "It's going to be an uphill battle for IT managers, just because of the nature of the devices," Snyder says.

Users are watching the developments carefully.

"Given that the majority of CE devices in production currently are not network connected, [any] exploit will hopefully be minimal," says Christopher Misra, a network analyst at the University of Massachusetts. "However given the trend toward network connection for handhelds, and increased wireless coverage, this may become more serious."

At Ozburn-Hessey Logistics, the majority of handheld devices in use at the Nashville company contain only personal data. A few employees might store spreadsheet files containing corporate information, says Matthew Booher, director of IS at Ozburn-Hessey. Also, the PDAs are not wireless-enabled, except for a handful of BlackBerry devices. The BlackBerries, which can be used to access e-mail wirelessly, "could be a real problem" if a PalmOS Trojan were to surface, Booher says.

Preventing PDAs and PCs from transferring viruses to each other via the direct synchronization link could be a job for anti-virus software, Booher says. "My thought would be to have the PC anti-virus program be smart enough to look for the virus on the PC and block it before it got to the handheld. Obviously, wireless connections would be a different matter."

Senior Editor John Cox contributed to this story.

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How Brador works

Brador is a classic Trojan backdoor program that opens an infected machine for remote administration, according to Kaspersky Labs. It cannot spread by itself; it launches if a user opens an e-mail attachment in which it's embedded, downloads it from the Internet or uploads it.

Once launched, the 5,632-byte program creates an svchost.exe file in the Windows autorun folder, which lets it assume full control over the system every time the handheld is turned on. Brador identifies the machine's IP address and sends it to the author, verifying that the handheld is on the Internet and the backdoor is active. Brador then opens Port 44299 and awaits further commands.

The open port gives the author full control over the infected PDA. Brador is programmed to upload and download files and execute a series of other commands.

— **Ann Bednarz**

Venture funding chases tried and true

BY CARA GARRETSON

In deciding where to put their money these days, venture capitalists appear to have given up looking for the "new, new thing," at least temporarily, and instead are investing in companies that are trying to improve existing technologies.

According to a special quarterly MoneyTree Survey created for *Network World*, investors poured $2.6 billion into network-related companies during the second quarter, up from $2.5 billion during the first quarter. These companies include providers of computer and peripheral products, IT services, network gear and software, as well as semiconductors. The MoneyTree Survey is conducted by PricewaterhouseCoopers, Thomson Venture Economics and the National Venture Capital Association.

MoneyTree QUARTERLY Venture Capital Survey

Two investments made during the second quarter stood out from the crowd; Force10 Networks raised $75 million, and Mahi Networks attracted $70 million (see graphic). Yet neither the companies nor the products they develop fall into new categories; 5-year-old Force10 Networks sells Internet switches, and Mahi Networks, also founded in 1999, makes optical network systems.

"That's pretty mainstream stuff," says Tracy Lefteroff, global managing partner of Venture Capital & Private Equity Practice at PricewaterhouseCoopers. Most of the network companies that received investments this past quarter are focused on "improving existing technology to make it better, faster, cheaper," he says.

Despite this focus on established companies, about one-third of second-quarter investments went to early-stage companies, defined as those with a product in the test phase, according to the survey.

Of the 395 networking-related deals signed this quarter, 120 were with early-stage companies. This is roughly on par with first-quarter investments, when 97 of the 360 investments were made in early-stage companies.

Topping early-stage deals for the second quarter were a pair of $15 million investments, one in SiNett and the other in Tzero. Both companies are new and are in the same product category: developing silicon technologies for use in wireless networks and devices.

"We're seeing a lot of the same types of investments in the IT space. We haven't really seen any truly disruptive technologies out there," Lefteroff says.

As investors focus more on companies with tried-and-true technologies and less on the bleeding edge, they are investing and reinvesting in fewer companies, but ones that they see having greater chances for success, says Gary Morgenthaler, general partner with Morgenthaler Ventures, which was one of the leaders in Force10 Networks' second-quarter investment.

This change of focus is notable from the late '90s style of investing, when investors scrambled to have at least one company representing every type of new technology in their portfolios, he says.

"When you have 25 or 30 or more competitors, as you did with the metropolitan broadband companies two or three years ago . . . too many companies fight tooth and nail for what business there is, and ultimately no one makes any money," Morgenthaler says. "Having a narrow range of choice of healthier companies with less competition is, in fact, what the market wants in the long term."■

Dollars deja-vu

Some of the largest investments in network-related companies during the second quarter went to firms working to improve established technologies.

Company	Product	Investment amount	Major investors
Force10 Networks	High-speed Internet switches	$75 million	Worldview Technology, Meritech Capital, Morgenthaler Ventures, NEA
Mahi Networks	Optical networks	$70 million	Oak Investment, Rho Ventures, JVP
Spreadtrum Communications	Wireless integrated circuits and software	$35 million	NEA, Vertex Management, Pacific Venture
Calix	Fiber-optic platforms	$30 million	Redpoint Ventures, Kinetic Ventures

SOURCE: THE MONEY TREE SURVEY, CONDUCTED BY PRICEWATERHOUSECOOPERS, THOMSON VENTURE ECONOMICS AND THE NATIONAL VENTURE CAPITAL ASSOCIATION.

Qwest latest carrier with enterprise woes

Analysts say rising competition and lower prices are to blame.

BY JIM DUFFY

Add Qwest to the list of carriers bludgeoned by the enterprise network services market.

The RBOC/interexchange carrier (IXC) last week reported disappointing second-quarter financial results in large part because of cutthroat competition in the enterprise market. Qwest cited intense pricing pressure in selling voice and data services to corporations, the same concerns AT&T and MCI had voiced in their quarterly earnings reports.

"When the competition says, 'I'll do this price or that price,' we'll walk away," said Qwest CEO Dick Notebaert during a conference call with financial analysts last week. He characterized the competition in the enterprise market as "brutal."

Qwest posted a loss of $776 million for the second quarter ended June 30, significantly worse than the $64 million loss posted in last year's second quarter. Revenue, at $3.4 billion, fell 4% vs. the year-ago quarter.

Analysts agree with Notebaert's assessment of the enterprise telecom market.

"One of the big problems these guys are facing is that they're seeing some demand increases, some volume increases, but in many cases it's not enough to offset the price compression," says David Parks, an analyst at The Yankee Group.

According to Lehman Brothers, prices of commercial telecom services have been dropping in the double-digit percentages for the past two years (see graphic).

At the same time, competition has intensified. RBOCs with approval to offer long-distance have built out nationwide IP networks to go after the enterprise data business that the IXCs once owned.

Meanwhile, the IXCs are focusing more intently on the enterprise market as they retreat from consumer and residential telecom after recent rulings by regulators on wholesale access policies. Earlier this year, AT&T CEO David Dorman pledged that the carrier "will not be beat on price" in the enterprise market in order that it can maintain and grow market share.

Sprint also has pledged to keep enterprise prices low, and MCI eliminated much of its debt during Chapter 11 bankruptcy reorganization so the carrier can afford to be more aggressive on price.

"These guys are all going after the same pie right now, and although the pie is getting a little bigger it's not growing at the same rate as the level of competition," Parks says.

Qwest, meanwhile, was an IXC before it was an RBOC. The carrier already had a national OC-192 optical fiber backbone in place before acquiring RBOC US West five years ago.

Some analysts on last week's conference call inquired whether Qwest might seek strategic alternatives for its national backbone, such as selling it off and leasing back capacity, to relieve some of the costs associated with owning and operating it. Reducing such costs might make Qwest better able to compete on price in the enterprise market.

Notebaert said that option was not currently a high priority for the carrier. A better option, he said, was to make the "on- and off-ramps" to the fiber-optic backbone more efficient — and less costly — so that Qwest can attain break-even results on enterprise cash flow.

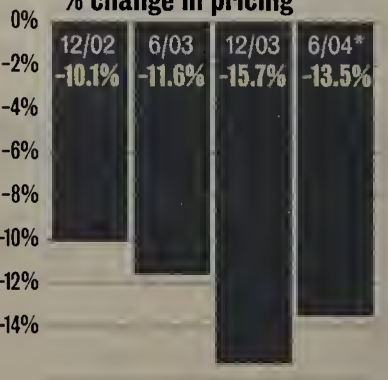
"When we get to the December quarter — March quarter at the latest — and we're running break-even, that [backbone] is not a bad asset," he said.

The Yankee Group's Parks agrees: "It's a critical component of the business and a pretty important capability for them. I don't think [divesting it] would make sense at this time."■

Deep discounts

Qwest, like other carriers, is finding it increasingly difficult to make money in light of falling prices for wireline enterprise telecom services.

Year-over-year % change in pricing



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Patches

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Angry hospital IT executives who say they can't ignore the risks from computer worms and hackers getting into unpatched Windows-based devices are taking matters into their own hands by applying the patches themselves.

"When Microsoft recommends we apply a critical patch, the vendors have come back and said 'We won't support you,'" says Dave McClain, information systems security manager at Community Health Network in Indianapolis.

So the hospital has gone ahead and applied critical Microsoft patches to vulnerable patient-care systems when vendors wouldn't, McClain says. The hospital views the failure to apply patches as a possible violation of the federal Health Insurance Portability and Accountability Act (HIPAA). "We have HIPAA regulatory issues, and you can't hold us back from compliance," he says.

Other hospitals make the same contentions.

The North Carolina Healthcare Information and Communications Alliance (NCHICA), a 250-member technology advocacy group for regional hospitals, clinics, pharmacies and legal firms, earlier this year sent a letter to the FDA's enforcement division asking the FDA to provide "more guidance" on patching. The problem, NCHICA wrote, is that "security flaws can result in systems that do not function as intended and/or allow unauthorized modification to data. Systems compromised in these ways may represent a significant risk to patient safety."

"Security of the systems is the primary focus of the letter," says Holt Anderson, executive director of NCHICA. Without the operating systems properly maintained in terms of patching, "there is no way to secure devices that are connected to a LAN or wireless facility," he says.

The FDA's Murray says the medical industry faces a serious problem because the "quality of some of these off-the-shelf software products is on the low side," alluding to the perennial stream of security notifications from Microsoft and other software vendors.

He adds that when the FDA eight years ago began allowing off-the-shelf software in medical devices, it didn't foresee the kinds of security issues, such as computer worms, that plague networks.

The FDA doesn't have a comprehensive response to the problem. "But we're not going to go back to a time of non-networked medical devices that used to be stand-alone," Murray says.

The problem is that computer worms that target Microsoft-based computers, including MS-Blaster and Sasser, have increasingly struck hospital networks, where unpatched Windows-based patient-care systems have become infected. Some manufacturers, including Philips, contend that hospitals must do a better job of applying security defenses to protect medical devices by buying intrusion-prevention systems (IPS) and internal firewalls.

However, hospital IT professionals respond that it's not that unusual for medical-device manufacturers to be the origin of worms that get in their networks.

There have been several instances in which viruses originated from medical instruments straight from the vendors, says Bill Bailey, enterprise architect at ProHealth Care, a Milwaukee healthcare provider. Medical equipment arrived with computer viruses on it or service technicians introduced the viruses while maintaining the equipment, he says.

Bailey says he wants device manufacturers to consider including host-based IPSs on Windows-based patient systems. In addition, he would like to see Microsoft involved in helping tailor its operating system and applications for the medical industry.

"The medical-device manufacturers don't understand the systems, whether Microsoft or Unix," Bailey says. "They leave them in an untouchable state for a long time. The idea of periodic changes is hard for them."

Although Bailey says he's not in favor of filing complaints with the FDA, which could escalate into legal conflict, he does want to see the FDA apply pressure on the manufacturers.

The FDA shows signs of doing just that. This June during a Web-based conference with the 47-member University HealthSystem Consortium to discuss the issue of security patching, the FDA's deputy director in the medical-device division of the Office of Science and Engineering Laboratories urged hospitals to file complaints about medical devices.

"Deputy Director Brian Fitzgerald said if you have a vendor that won't patch, notify us," says Joe Bajek, director of IT at the Health Sciences Center, a teaching hospital in Denver. The FDA indicated it might regard patching failure as a "product abandonment," which might mean yanking vendor certifications.

Bajek says filing a complaint with the FDA would involve internal discussions with his company's legal, purchasing and bio-medical groups to determine which vendors are the worst offenders. But he's open to the idea, and at any rate, "we can say to vendors, if you don't have a strategy, we're going to the FDA."

Pressure on device vendors to patch also is coming from the U.S. Air Force, which operates 78 hospitals. While the Air Force can't solve the patch issue single-handedly, it is drawing attention to the security issues by not allowing certain medical equipment on the Air Force network unless it's patched. Under an equipment evaluation program that results in a vendor earning a "Certificate of Networthiness," the Air Force has started to require that medical picture archiving systems based on Windows, Sun Solaris and accompanying databases undergo evaluation based on tools from the Defense Information Systems Agency and vendors that include Internet Security Systems before allowing the equipment onto the Air Force network.

"These medical images are going across from base to base, and there's concern about security," says Tom Lewis, program manager of medical picture archiving systems at the Air Force Medical Support Agency at Fort Detrick, Md. "This is the same network used by the war fighter." The Air Force wants to ensure that medical devices don't become the means to compromise military operations in any way.

The Air Force medical-device evaluation program requires vendor technicians updating patches to have security clearances and requires vendors to agree to apply patches if possible after CERT and other security bulletins are issued. Still, ultimately there are no guarantees because software updates potentially can break medical systems.

"It's not possible to make a guarantee," says Tim Artz, Agfa's global government program director, who adds that he has not yet seen a device from Agfa that couldn't handle a security patch.

Agfa, a major supplier of medical picture archiving systems to the Air Force, last month became the first to earn the equipment certification. Other vendors, including Eastman Kodak's Health Imaging Group, also plan to submit equipment for testing, particularly because it's a requirement for the next large Air Force medical-equipment contract.

Artz says the Certificate of Networthiness program helps the Air Force unify under the banner of one security regimen rather than requiring medical-device testing at each base, as was the case before. Artz says he hopes to see similar unified programs in the Army and Navy.

The U.S. Department of Veterans Affairs this week at its annual IT Conference in Austin is expected to detail how medical-device manufacturers will be able to more securely access the VA network to perform security patches to medical equipment. The approach will entail use of a Cisco-based gateway-to-gateway VPN using two-factor authentication by means of RSA Security's SecurID token hardware.

The medical-device manufacturers emphasize that they are as eager as their customers to resolve problems associated with patching.

One step they hope to take would be to issue industry guidelines later this fall under the auspices of the National Electrical Manufacturers Association's Joint Privacy and Security Committee for International Medical Informatics. The document, now in draft form, will be called "Patching Off-the-Shelf Software Used in Medical Information Systems."

James Keese, chief privacy/security officer at Eastman Kodak's Health Imaging Group, says the standards document will address a range of safety issues in patching medical devices. But the bottom-line problem, he says, is that "patches from Microsoft have had an impact on medical applications."

When that happens, the manufacturer is left in the situation where the medical device simply can't be updated with a security patch because this might cause the device to malfunction — also a threat to patient safety. ■

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What the doctor ordered

Several efforts are underway to cure hospitals' software patching ills.

- North American, European and Japanese medical-device manufacturers, under the auspices of the National Electrical Manufacturers Association's Joint Privacy and Security Committee for International Medical Informatics, plan to issue a document this fall called "Patching Off-the-Shelf Software Used in Medical Information Systems" to specify a standard to protect medical equipment.
- The Air Force is requiring medical-device manufacturers to submit their equipment for evaluation and adherence to software-patch guidelines to earn its "Certificate of Networthiness."
- The Department of Veterans Affairs has issued a "Medical Device Isolation Architecture Guide" for protecting medical devices in VA hospitals and this week plans to announce that an IPSec VPN will be used in the patch-update process.

> **"When Microsoft recommends we apply a critical patch, the vendors have come back and said 'We won't support you.'"**
>
> **Dave McClain**
> Information systems security manager, Community Health Network

Previous coverage

- **Hospitals and medical-device manufacturers clash over how to apply security patches to Windows-based patient-care systems. See www.nwfusion.com, DocFinder: 3248.**
- **Vendors and customers, including the U.S. Department of Veterans Affairs, look for solutions to medical-device security problems. See DocFinder: 3249.**

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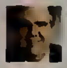
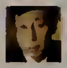
MONDAY, OCTOBER 25

9:00am to 9:30am	Breakfast		
9:30am to 10:25am	INDUSTRY PRIMER TRACK **Addressing High Density Cooling of Storage Networking Equipment at the Facility Level** Donald Beaty, Founder & President, DLB Associates	INDUSTRY PRIMER TRACK **Storage Basics and Trends** Dennis Martin, Senior Analyst, and Greg Schulz, Senior Analyst, Evaluator Group	CAREER DEVELOPMENT TRACK **Power Statements, Questions and Answers Techniques** Howard Goldstein, Founder, Howard Goldstein Associates, Inc.
10:35am to 11:30am	**Role of Server Blades and Virtualization in Next Generation Data Center** Arun Taneja, Founder and Consulting Analyst, Taneja Group	**Why Tape Continues to Make the Grade** Richard Harada, President, Tape Technology Council	
11:30am to 1:00pm	Luncheon		
Afternoon	**SNIA Tutorial Sessions** 1:00pm to 6:40pm · **Data Lifecycle** · **Virtualization & Securing Your Storage** · **Focus on Networking Your Storage** · **Focus on Storage** · **SAN Management** · **Voice of the User** SNIA	**IDC Briefing Session** 1:00pm to 5:00pm IDC In this fast-paced session, IDC's top storage analysts will examine companies' growing interest in deploying tiered storage solutions and assess its impact on storage components, systems, networks, management and services.	**IT End-User Golf Outing** noo[illegible] approximately [illegible] SPONSORED BY Quantum The pre-conference golf outing at the Ritz-Carlton Golf Club located adjacent to the JW Marriott Grande Lakes Resort is complimentary (a $125 value) for registered IT end-users. (Other participants, including sponsors and vendor representatives, may play on an "as available" basis and are responsible for all applicable golf outing expenses.) **To secure your spot, contact Michael Meleedy at 1-508-820-8529.**
7:00pm to 9:00pm	Welcome Reception		

For more information and to register, visit www.snwusa.com/nww or call 1-800-883-9090

TUESDAY, OCTOBER 26 *General Sessions Begin*

7:15am to 8:15am	Breakfast
8:30am to 9:15am	**Don Tapscott, Renowned Bestselling Author of *The Naked Corporation, Growing Up Digital* and *Paradigm Shift***
9:15am to 9:45am	**The Future of Knowledge Management** John Halamka, MD, CIO, CareGroup Health System and Harvard Medical School
9:45am to 10:15am	**Kevin Rollins, President & COO, Dell**
10:30am to 11:00am	 **Keith Glennan, VP & CIO, Northrop Grumman IT**
11:00am to 11:30am	 **Shinjiro Iwata, CEO, Hitachi Data Systems**
11:30am to noon	**Industry Presidents' Roundtable and Market Outlook**
12:15pm to 1:30pm	**CONCURRENT LUNCHEON SESSIONS**
	General Networking Luncheon On the JW Lawn
	Concurrent Luncheon Session Steve Duplessie, Founder & Senior Analyst, Enterprise Storage Group
	Concurrent Luncheon Session Richard Sneider, InterUnity Group
1:30pm to 2:00pm	**David Cohen, VP, Technology Architecture Group, Merrill Lynch**
2:00pm to 2:30pm	**Greg Reyes, Chairman & CEO, Brocade Communications Systems**
2:30pm to 3:00pm	**Rod Mueller, Manager of Technology and Infrastructure, International Paper**
3:00pm to 3:45pm	**CTO Insights Panel** Moderator: Jon William Toigo, Founder, Toigo Partners International
4:00pm to 5:30pm	**CONCURRENT SESSIONS**
5:30pm to 8:30pm	Expo with Dinner / Interoperability & Solutions Demo Open Interoperability & Solutions DEMO 5:30pm to 8:30pm

WEDNESDAY, OCTOBER 27

7:15am to 8:15am	Breakfast
8:15am to 8:30am	**Opening Remarks**
8:30am to 9:15am	**Nick Carr, former Executive Editor of the Harvard Business Review and author of *Does IT Matter?***
9:15am to 9:45am	**End User Case Study**
9:45am to 10:15am	**Industry Leader Presentation**
10:30am to 11:00am	**Michael Prince, CIO, Burlington Coat Factory**
11:00am to 11:30am	**Peter van Oppen, Chairman & CEO, ADIC**
11:30am to 12:15pm	**Panel: End Users Speak Out**
12:15pm to 1:45pm	Expo & Luncheon
1:45pm to 2:15pm	**End User Case Study**
2:15pm to 2:45pm	**Industry Leader Presentation**
2:45pm to 3:30pm	**Analyst Roundtable Panel** Moderator: Jon William Toigo, Founder, Toigo Partners International
3:45pm to 5:15pm	**CONCURRENT SESSIONS**
5:15pm to 7:15pm	Expo and Reception
7:30pm to 9:00pm	Gala Evening, Dinner and Entertainment

INTEROPERABILITY & SOLUTIONS DEMO OPEN
12:15pm to 7:15pm

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THURSDAY, OCTOBER 28

7:30am to 8:30am	Breakfast
8:30am to Noon	**CONCURRENT TECHNICAL & BUSINESS TUTORIALS**
Noon	Conference Concludes

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André Mendes
Chief Technology Integration Officer
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John Greer
Director, IT Infrastructure
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- ☐ Initiate the purchase
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- ☐ Identify/establish the need to purchase
- ☐ All of the above

Number of employees in your entire organization (ALL locations)
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- ☐ 5,000 - 9,999
- ☐ 1,000 - 4,999
- ☐ 500 - 999
- ☐ Less than 500

What is the estimated annual revenue of your entire organization?
- ☐ Over $10 Billion
- ☐ $1 Billion - $9.9 Billion
- ☐ $500 Million - $999 Million
- ☐ $100 Million - $499 Million
- ☐ Less than $100 Million

Your organization's annual IT/IS budget for all IT/IS products, or if you are a Channel/Integrator Partner or Consultant, what is the annual dollar value of IT products/services you sell/resell/recommend/influence for purchase by your customers/clients.
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- ☐ $500 Million - $999 Million
- ☐ $100 Million - $499 Million
- ☐ $10 Million - $99 Million
- ☐ $1 Million - $9.9 Million
- ☐ Less than $1 Million

Annual company IT budget (storage products and services
- ☐ Over $1 Billion
- ☐ $500 Million - $999 Million
- ☐ $100 Million - $499 Million
- ☐ $10 Million - $99 Million
- ☐ $1 Million - $9.9 Million
- ☐ Less than $1 Million

Would you like to receive information about playing in the golf outing on Monday, October 25th?
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Check Point faces up to challenges

Security company is integrating its software in network gear, selling its own appliances.

■ **BY TIM GREENE**

You'd think Check Point might be hitting its peak given that network security has become the top priority for so many IT shops. But the firewall/VPN company actually is facing some of its stiffest challenges.

Putting the pressure on Check Point are Alcatel, Cisco and Enterasys Networks, which have introduced frameworks for safeguarding networks that involve embedding security enforcement in routers and switches. Separately, Juniper spent $4 billion to snap up NetScreen Technologies, one of Check Point's biggest rivals. Meanwhile, security software vendors Internet Security Systems, Symantec and others are offering firewalls and VPNs alongside applications such as anti-virus, intrusion prevention and intrusion detection.

As competitors have made their moves, Check Point hasn't sat idly by. In a departure from its history as a software-focused company, Check Point has rolled out a series of appliances to meet demand for simpler-to-implement security gear. And it has expanded its technology scope with two appliances to protect not only network perimeter and WAN connections but also Web and LAN traffic.

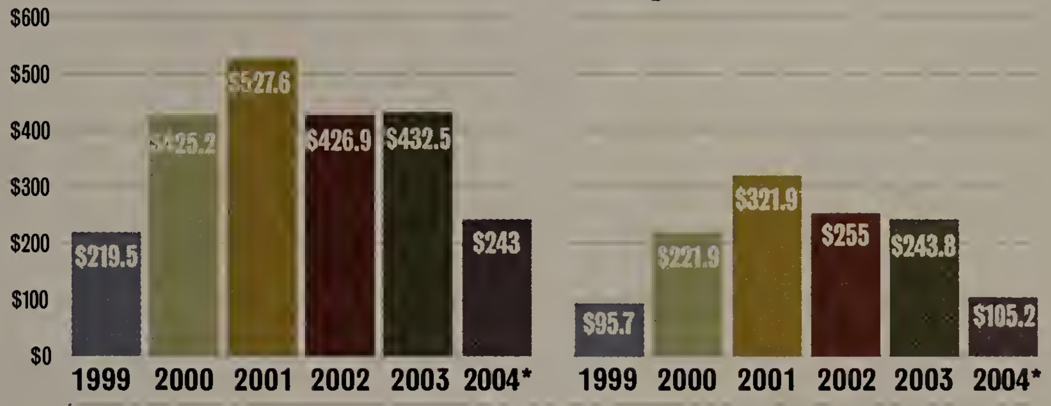
And earlier this year, the company acquired Zone Labs for $205 million to obtain endpoint security technologies used for checking remote computers before granting them network access.

Still, the company was slow to get into these new areas and paid the price, says Jason Wright, program leader for security technologies at Frost & Sullivan. "In 2002 and 2003, they put out virtually no new products. In the past 12 months they've fixed that problem, but it cost them market share," he says.

Check Point's share of the firewall/VPN gateway market tumbled from 27% in 2001 to 19% last year, Wright says. The company is optimistic about coming back though, with a revenue growth forecast in line with the 19% growth expected in the VPN/firewall market as a whole, he says.

Check Point by the numbers

Despite maintaining a strong position in the security market, Check Point has a way to go to get its revenue and earnings back up to 2001 heights.



*First half

Fighting back

Since its founding in 1993, Check Point has been near the top of the firewall and later firewall/VPN market (Infonetics says the company is No. 3 behind Cisco and Juniper in the latest quarter based on sales). The company has sold its software directly to IT shops, which run the software on hardware the shops select, and to appliance makers, such as Nokia.

To keep itself among the industry leaders, Check Point annually has devoted at least 6% of its revenue on research and

See Check Point, page 20

Short Takes

■ **The SCO Group** last week unveiled a developer version of its upcoming **OpenServer operating system.** Code-named Legend, the operating system will include PostgreSQL and MySQL relational databases, and support for symmetric multiprocessing, load-balancing and VPN environments. Also included is SCOx Web Services, which features Simple Object Access Protocol and XML-based libraries and tools. SCO OpenServer runs on Intel and AMD server platforms. It is expected to ship in the first quarter of 2005. Pricing will be announced then. Visit www.scogroup.com/products/beta for information on the beta program.

■ **HP** last week introduced its first storage arrays that use Serial Advanced Technology Attachment drives. The **StorageWorks Modular Smart Array 1500** is a storage enclosure that supports either SCSI or Serial ATA drives and can be used for storing fixed content. A second product, the MSA 20, is a storage array that supports as much as 8T bytes of Serial ATA disk. An MSA 1500 configured with MSA 20 storage starts at $9,000; the MSA 20 starts at $2,960.

Chelsio launches 10G Ethernet for less

■ **BY PHIL HOCHMUTH**

Chelsio Communications' launch of a 10G bit/sec Ethernet network interface card for about $2,000 could signal the start of a price decline that will encourage customers to embrace the high-speed technology.

The fiber-based N100 server adapter is half the size and 60% less expensive than competitive products, Chelsio says. Gartner says the average price of a 10G NIC is about $6,000.

In addition to accelerating network connections, Chelsio's new offering can speed processing by offloading TCP/IP computations from servers, the company says.

The product, which runs in Linux, Unix and Windows machines outfitted with PCI-X slots, was launched last week at LinuxWorld Expo in San Francisco.

Heading south

Gartner predicts the price of 10G NICs will be about $3,100 by 2007, almost half the current average price of $6,100.

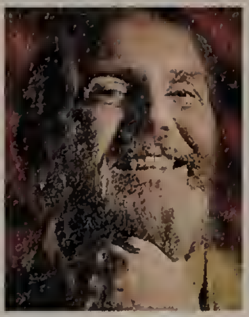
The N100 is based on chip technology from Chelsio's T100 host bus adapters for iSCSI storage networking, but is half the size of the T100. The size lets the new NIC be deployed in smaller servers and makes it easier to install multiple cards in one box, the company says.

Chips on the N100 let the NIC take over TCP/IP packet processing from a server's CPU. Chelsio says this lets a server processor devote more resources to running applications and the operating system. The company says this architecture also lets it handle up to 64,000 simultaneous TCP/IP connections on one NIC. It says this is 52% better than competing 10G Ethernet NICs from S2IO and Intel — the other two vendors with 10G Ethernet NICs on the market.

Gartner says the number of 10G NICs installed will jump from about 7,000 this year to 550,000-plus by 2007. Large organizations consolidating servers will be driving this growth, the research firm says.

By 2007, the average price for a 10G NIC will drop to about $3,100 per unit, partly as a result of their fiber components becoming less expensive, Gartner says. The emergence of a copper 10G standard, expected in 2005, also will drive down price. ■

WIRED WINDOWS
Dave Kearns



Web services turns rock star

Two very different people — Burton Group's Jamie Lewis and O'Reilly Media's Tim O'Reilly — took on similar themes during keynote addresses at the recently concluded Catalyst Conference (Lewis) and the Open Source Convention (O'Reilly). In essence, both said the computing stack had grown, Web services was at the top and everything else was on its way to commodity status.

Back in the day, the computing stack consisted of three parts: an application designed to solve a problem, an operating system and hardware required by the operating system. Over the years we could argue about various CPUs such as the Z-80, 8080 and 6502. But today, processors are commodities that better act like an Intel CPU. Then there were the operating system wars, going back to C/PM, DOS, DR-DOS and M/PM. The GUI saw its own battles.

But today, supposedly, abstraction layers and middleware are designed to look like a black box to the top-level Web services. We've even created the term service-oriented architecture to describe the commoditized stuff, the plumbing, if you will, that supports the services exposed to the user.

It's as if these services were the rock stars of computing and everything else had to knuckle under to their demands. It's true that Van Halen's standard performance contract contained a provision calling for the band to be provided with a bowl of M&Ms, but with all the brown candies removed. Not that David Lee Roth hated brown, but it was an easy way to quickly see if the show promoter had read the contract. So far there's nothing like this in Web services, as far as I know, but anything can happen.

What's really sad is how commoditization stifles innovation. Web services expect certain information to be available, certain functions to be performed and (especially) certain timings to be enforced. Web services requests all run according to the clock. Mustn't keep the rock star waiting! So even though some will claim there's still room for innovation in "the plumbing," that innovation can only support two results — a smaller form factor (especially for hardware but also for the software "footprint") or a lower cost. Innovations offering additional functionality need not apply. The new, fun, exciting stuff has to be left to the rock stars. How very, very sad.

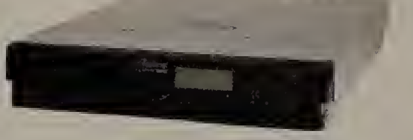
Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He reached at wired@vquill.com.

Tip of the Week

If you are into maps, graphics or dazzling displays of computing power, then I'm sorry if you didn't see David Rumsey's keynote at the **Open Source Conference.** Rarely does a display of maps bring a standing ovation, but this did. Visit www.davidrumsey.com and explore it thoroughly.

Snap Appliance debuts midrange NAS device

■ BY DENI CONNOR



By far the largest of Snap's NAS devices, the 18000 scales to 30T bytes.

Snap Appliance, in its first announcement since being acquired by Adaptec, says it is entering the midrange network-attached storage market.

The company says its new Snap Server 18000 is designed for divisions within large businesses or as secondary storage within a data center. Snap sells more NAS units than anyone, based on its strength at the low-end of the market.

The box boasts from 2T to 30T bytes of storage capacity and uses Snap's proprietary Guardian operating system, which can handle block and file information.

Dan Werthimer, chief scientist for the University of California Space Sciences Lab in Berkeley, recently installed a Snap Server 18000 to hold 6T bytes of data. The device has proven resilient enough to handle business-critical data, he says.

"It's our main database for the SETI@Home project, so it has to handle a lot of real-time transactions," says Werthimer, who also has Network Appliance file servers.

Snap has enhanced its Guardian operating system by adding support for symmetric multiprocessing servers; the Network Data Management Protocol, which allows network-based backup of NAS devices; and enhanced support for iSCSI. Snap's iSCSI implementation now supports host bus adapters from Intel, Adaptec and Alacritech on servers running Windows, Red Hat Linux and Solaris.

The company also has enhanced its replication software with byte-level asynchronous duplication of data across distance. Called Server-to-Server Synchronization v2, the software now allows the bidirectional replication of data between NAS devices. Snap Server 18000 also ships with BakBone's embedded NetVault software, Computer Associates' eTrust Antivirus and native snapshot technology.

Snap Server 18000 uses dual Intel Xeon processors and inexpensive 7,200 RPM Serial Advanced Technology Attachment disk drives. It has redundant, hot-swappable components and battery-backed non-volatile memory for fault-tolerance. It is equipped with software called Instant Capacity Expansion, which allows for the dynamic and uninterrupted provisioning of data as 4T-byte expansion devices are added or removed from the array.

Analysts say Snap's Snap Server 18000 likely will compete with storage devices from big name vendors.

"Snap is going to compete with Microsoft Storage Server 2003 boxes, but will start to encroach on Network Appliance filers and IBM's AIX box.," says Brian Babineau, an analyst with Enterprise Strategy Group.

A 2T-byte Snap Server 18000 will cost $15,000; a 4T-byte expansion array will cost $18,000. Both are expected to be available later this month. A Fibre Channel host bus adapter will be required to link Snap Server 18000 to the 4T-byte expansion array. Server-to-Server Synchronization will cost $1,300 per NAS appliance. ■

Check Point

continued from page 17

development, which Wright says puts it in about the middle of the range of what competitors spend.

It's the introduction of a series of new boxes over the past year that signals perhaps the biggest change at Check Point, which has maintained profit margins of 43% or better over the past five years by concentrating on software. These offerings include an Secure Sockets Layer remote-access appliance, a LAN firewall/quarantine device and a firewall/VPN box for small and home offices.

But the company isn't entirely out of the woods. By selling hardware and software, it is drastically changing the rules by which it does business, which affects its extensive and lucrative open platform for security (OPSEC) program. OPSEC partners include 3Com, NEC, Nortel and Symantec, whose gear either incorporates Check Point technology or is certified to work with it.

The OPSEC partner most successful at putting Check Point software on appliances is Nokia, which sells enough of the boxes to rank fourth among firewall/VPN appliance vendors, according to IDC. But now that Check Point is selling appliances, it now competes with Nokia. "The partnership is wavering a bit," Wright says.

Initially the new Check Point appliances don't compete directly with those of its major hardware partners such as Nokia, but that inevitably will happen, says Jeff Wilson, director of research for Infonetics.

Check Point will need to do a good job maintaining relationships with partners as it goes about selling its own gear, Wilson says. That's because the company needs to strengthen its partnerships with network equipment vendors in the face of stepped-up competition from companies such as Cisco, Enterasys and Juniper, he says. "This is something they absolutely have to do," Wilson says.

Zeus Kerravala, vice president of network equipment for financial firm Detwiler, Mitchell, Fenton and Graves, says Check Point must ensure that its technology plays a key role in network equipment vendors' security schemes. "I think they become more 'Check Point inside,'" he says.

As Check Point integrates its technologies with those of others, it needs to make things easy for customers, says Joel La Calamita, manager of infrastructure and communications for the American Institute of Physics. He ditched Check Point-powered Nokia boxes after the two vendors couldn't figure out over an eight-week period why the boxes were acting up after an upgrade, he says.

"[Check Point's VPN-1/Firewall-1] is still one of the strongest products out there, but I didn't have the luxury to stay with it," says La Calamita, who switched to Juniper gear.

He says problem solving just became too complex given that a valued-added reseller, hardware company and software company all were involved.

If Check Point can resolve such issues, the company could continue its comeback from a revenue and earnings plunge suffered in 2002 alongside so many other IT suppliers.

"Check Point is an incredibly strong brand," Kerravala says.

But investors aren't giving the company a lot of wiggle room. Last month Check Point announced that it met its revenue goal for the second quarter, but its stock price immediately fell to $17.70, its the lowest point this calendar year. Why? The company didn't break out separate accounting of revenue from the Zone Labs acquisition, and it projected slightly lower third-quarter revenue than some Wall Street analysts wanted to hear. Since then the stock has regained some of its value, reaching above $19 last week. ■

Enterprise Applications

- PORTALS ■ MESSAGING/GROUPWARE
- E-COMMERCE ■ SECURITY
- MIDDLEWARE ■ DIRECTORIES
- NETWORK AND SYSTEMS MANAGEMENT
- WEB SERVICES

IBM differs in acquisition strategy

Big Blue targets smaller, less-expensive companies that have easy-to-integrate technology.

■ **BY ANN BEDNARZ**

Like cyclist Lance Armstrong in the Pyrenees Mountains, IBM's acquisitions strategists have picked up the pace. Just last month the company added application-monitoring software from Cyanea Systems and business intelligence development tools from Alphablox to its nearly $15 billion software division.

One reason is simply opportunity. IBM has loosened the purse strings, and some of the smaller companies have lowered their valuations so they can get bought, says Jasmine Noel, a partner at research firm Ptak, Noel & Associates.

Additionally, customers continue to gravitate toward large vendors, which puts pressure on small vendors to get acquired and translates into bargains for the big players.

"There are a lot of companies shopping themselves around very aggressively," says Jim Murphy, a senior analyst at AMR Research. "It's a buyers' market right now for IBM and other big vendors."

> **"There are a lot of companies shopping themselves around very aggressively. It's a buyers' market right now for IBM and other big vendors."**
>
> **Jim Murphy**
> Senior analyst, AMR Research

In IBM's case, the buildup of its services business (boosted significantly with the 2002 purchase of PricewaterhouseCoopers' consulting arm) is another reason for all the activity. IBM's services engagements provide a ripe setting for identifying acquisition targets in areas where IBM potentially could make money, Murphy says. "The services business is giving IBM some insight into areas of fruitful acquisition," he says. "IBM can see what its services customers need and evaluate whether the need is repeatable."

Trigo Technologies is a good example. IBM acquired Trigo for its product information management software in April. Trigo's software is used mainly by retailers and consumer goods companies, linking product-related information such as size and color with transaction terms such as pricing, and then publishing this information to internal and external systems.

IBM snapped up Trigo in time to catch the wave of mandates from retailers around data synchronization — an initiative to reconcile the product data that gets swapped among companies to reduce errors in invoicing, purchase orders and product delivery. Wal-Mart, Wegmans, Ace Hardware, Lowe's and The Home Depot are among retailers requiring their suppliers to begin synchronizing product information through UCCnet, a nonprofit organization that manages an item registry for companies' product data.

"IBM did a good job of assessing market opportunity with Trigo," Murphy says.

Keeping it small

IBM didn't disclose what it paid for any of its last five software company purchases. But in the first half of the year, Big Blue spent a total of $800 million on acquisitions, according to its most recent quarterly financial statement. During that time, IBM

See IBM, page 24

Short Takes

■ **IBM** last week announced it has made **Sourcefire's** intrusion-detection sensors, including the Realtime Network Awareness appliance, part of its managed services offerings. Sourcefire's appliances are built on the IBM xSeries platform and can forward encrypted information to IBM's Tivoli Risk Manager.

■ **Edify** this week is expected to upgrade its **speech platform,** which combines traditional interactive voice-response development tools with features supporting VoiceXML, speech recognition and business application integration. The new version, called **Edify Voice Interaction Platform 9.0,** unbundles Edify's voice application server and browser to give users more purchasing and deployment options. Voice Interaction Platform 9.0 is due to start shipping this month. Edify declined to discuss pricing.

Vendors shore up ID mgmt. tools

Passlogix, Imprivata update single-sign on wares.

■ **BY JOHN FONTANA**

Two single sign-on vendors are upgrading their products in an effort to meet the needs of corporate users warming up to identity management.

Passlogix says it is making its v-Go SSO server and agent software more extensible so that companies can customize it to meet their security needs. Version 5.0 has been designed to house a series of plug-in modules and also supports a number of new directories and databases to store user data.

Separately, Imprivata last week shipped OneSign 2.5, which adds a password-reset feature, support for biometrics and self-updating agent technology to the company's single sign-on appliance.

"Enterprise SSO has come of age," says Jonathan Penn, an analyst with Forrester Research. "It has been overlooked for a long time based on the perception that the technology had shortcomings."

Much of that perception is based on password synchronization technologies that are less expensive than SSO, but not as secure, according to Penn. Password synchronization provides one password for every system, which can result in weak passwords on systems that require a complex password. SSO provides a single password that then maps to the password for the target system. The differences are subtle, but SSO generally allows for more complex passwords and provides administrators a single point to cut off network access instead of having to deactivate accounts in each system. SSO also incorporates centralized access policies and auditing features to track who is using what applications and when.

"There is a lot of user convenience, management convenience, and for security, SSO is much safer and [more] secure than the status quo today," Penn says.

Passlogix plan

In developing v-GO 5.0 as a hub for plug-ins, Passlogix will first enable the software to support the v-GO Self-Service Password Reset, which shipped earlier this year. The technology integrates into the Windows log-on prompt, adding a button to the dialog box for one-click access to password-reset features.

Before year-end, Passlogix says it will add

See SSO, page 24

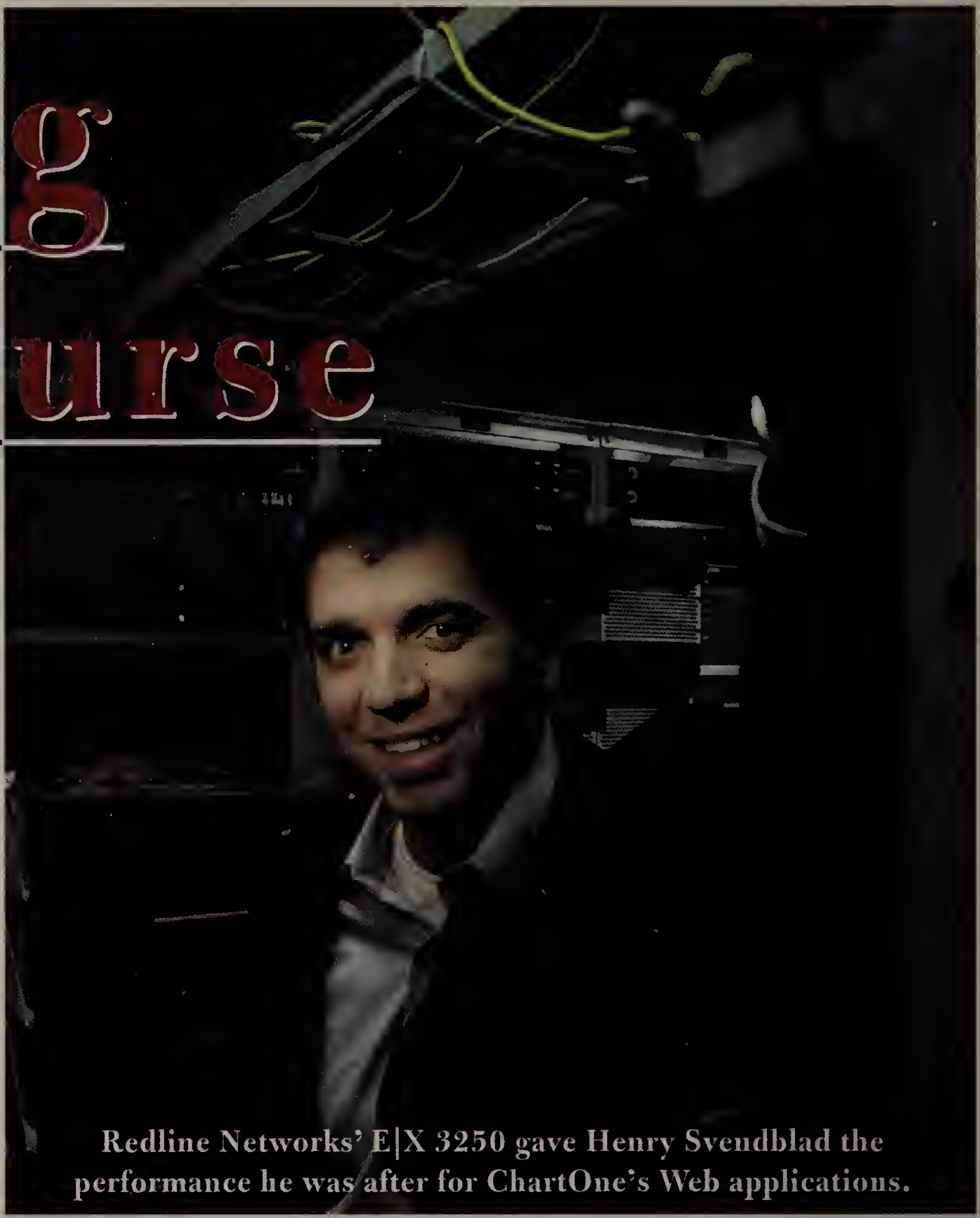
Signing on

Passlogix and Imprivata are updating their single sign-on offerings to meet growing demand for identity management technology.

Product	What's new	Pricing
Passlogix v-GO 5.0	Software is now a platform that will anchor plug-in modules such as self-service password reset.	V-GO 5.0 is $69.95 per user. Self-service module costs $10 per user.
Imprivata OneSign 2.5	Improvements include self-service password reset, biometrics and agent updating.	$15,000 for 200 users; up to $160,000 for 10,000 users.

Charting a Web Course

Redline Networks helps medical records management firm ChartOne cure network pains and boost the business case for its Web-enabled ERP apps.


Redline Networks' E|X 3250 gave Henry Svendblad the performance he was after for ChartOne's Web applications.

Photograph by Robert Houser

NO IT EXECUTIVE LOOKS FORWARD TO ASKING upper management to spend $200,000 on a major system upgrade. But Henry Svendblad, director of IT at ChartOne, Inc., felt he had little choice.

ChartOne, based in San Jose, California, sells technology and services that help health care institutions easily and cost-effectively access and manage patient records. To better serve its customers, which represent 20% of hospitals in the U.S., and to ease the burden on its own IT staff, the company wanted to migrate its ERP applications to the Web.

Like many companies transitioning to Web-based applications, ChartOne hit performance snags that no amount of application tuning and new hardware could cure. Only after two years of trial and error did ChartOne find a cure in Redline Networks, which makes a family of appliances that deliver a broad set of capabilities to ease the network burdens and boost the business case for Web-enabled applications. With Redline's E|X 3250 enterprise application processor handling I/O processing, connection management, compression, load balancing and SSL processing, ChartOne customers and internal users are now experiencing the performance they require — and the company's IT group is realizing the administrative benefits that Web-enabled applications can bring.

ON THE WEB TRAIL

ChartOne's odyssey began in July of 2001, when the company began migrating its homegrown client/server enterprise applications to Peoplesoft 8, a Web-based ERP suite. "We were expecting growth of 20% to 30% a year, and we felt we needed a big ERP system," Svendblad says. In addition, thin, standardized browsers would require far less IT support than fat, homegrown clients.

If ChartOne was going to offer Web-based patient records management services, Svendblad also felt the company "should eat our own dog food" and use a Web-based application platform internally.

Webification proved to have its challenges, however. As more application modules and users moved onto the new infrastructure, response times slowed to a crawl. Employees at the company's 10 remote offices sometimes spent hours waiting for tickler screens that had taken minutes to display under the old client/server system. The 10- to 15-person offices had plenty of bandwidth, IT staffers knew: In anticipation of the migration to Peoplesoft 8, they'd deployed T1 links to each site.

Users on the corporate LAN were also having difficulties. By far, the worst off was the accounts receivable department, which processes more than 300,000 transactions per month. Productivity had dropped by 20% because of response time degradation. "During peak usage periods, it was taking people minutes to go from screen to screen," Svendblad says.

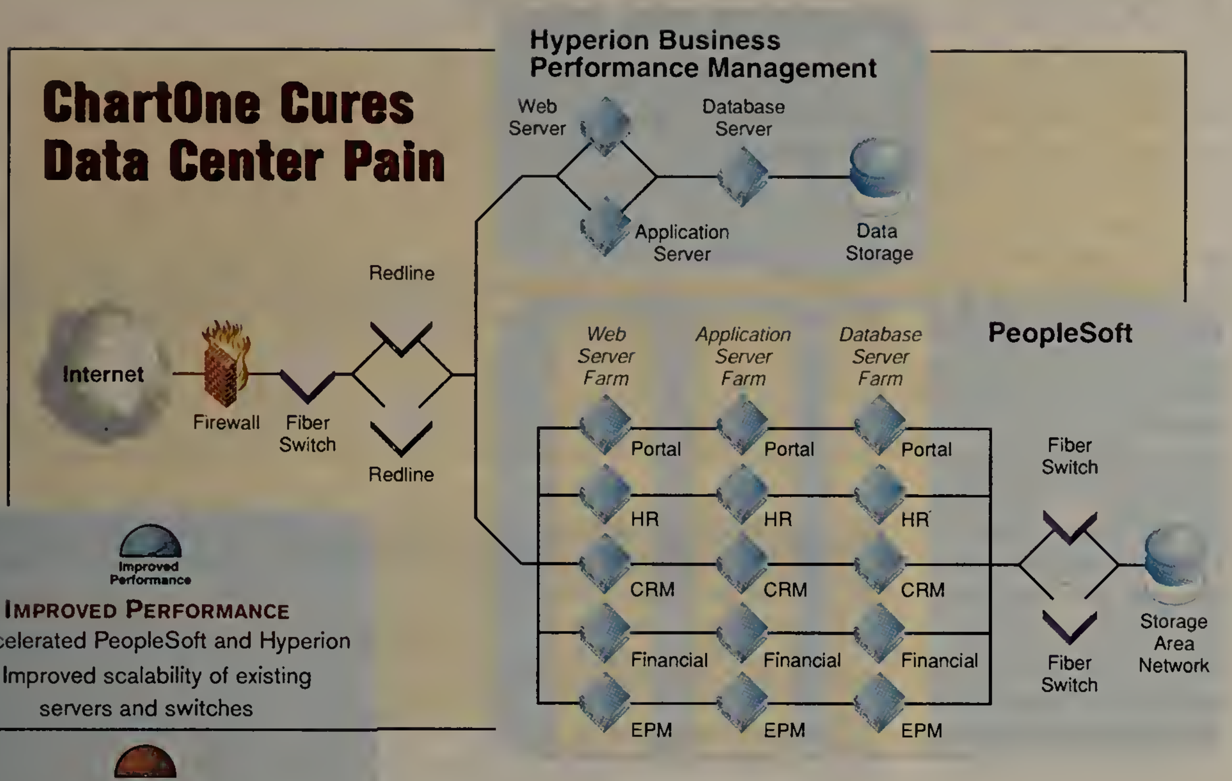
ChartOne's Challenges

- Web-enabled enterprise applications were overloading servers.
- Server processors were at 80% to 90% utilization levels during peak traffic periods.
- Slow response time over corporate LAN was hurting user productivity.
- Remote users waited hours for screen downloads.

The Redline Networks Cure

- Average server CPU utilization during peak usage now between 10% and 15%.
- Response time returned to desirable levels for local and remote users.
- Remote sites no longer need terminal servers.
- Bandwidth consumption decreased approximately 70%.
- Savings of $200,000 by avoiding major hardware upgrades.

Produced by NetworkWorld Custom Media Solutions



Improved Performance

IMPROVED PERFORMANCE
Accelerated PeopleSoft and Hyperion
Improved scalability of existing servers and switches

Higher Availability

HIGHER AVAILABILITY
Eliminated client-server in remote sites
Simplified network infrastructure

Easier Management

EASIER MANAGEMENT
Reduced number of costly security certificates
Saved $200,000 in server upgrades

IN SEARCH OF A CURE

As user complaints mounted, the IT staff began looking for remedies. PeopleSoft and Oracle — ChartOne's application vendors — initially suggested fine-tuning their applications. "With a thin Web client, ERP systems involve complex querying in the background," Svendblad explains.

When tweaking back-end software produced little improvement, ChartOne tried upgrading its server hardware. It deployed another Sun 420R application server and storage box, then migrated the main financial server from a 420R to a more powerful SunFire server. "Performance improved slightly, but we were still looking at CPU usage in the high 80% to 90% range during peak processing time," Svendblad says. "And our phones were still ringing off the hook."

Pressed for answers, ChartOne even took the radical step of supplying remote offices and home workers with terminal servers. While that substantially improved response time, maintaining the devices offsite was a major burden on the IT support staff. "It was like we'd gone back to a client/server setup," Svendblad says, noting the setup also strained budgets and IT resources.

Meanwhile, Web and application servers were still maxing out during peak usage periods. A major upgrade seemed inevitable. "It looked like we needed a new [BEA Systems] WebLogic server, a new database server and a third server for finance," Svendblad says. His team priced out three SunFire servers on the second-hand market at about $50,000 apiece. He also budgeted $50,000 for a LAN upgrade, bringing the total budget hit to $200,000, which Svendblad calls a conservative estimate.

ONE VERY BRIEF PILOT

Just as he was about to swallow that bitter pill, a former colleague told Svendblad about Redline Networks in Campbell, Calif., and its family of appliances that help enterprises manage the network impact of Web-enabled applications and improve their business case.

In the summer of 2003, ChartOne deployed Redline's E|X 3250 enterprise application processor in front of its WebLogic servers. The Redline device took over complex scheduling of TCP requests and connection management chores for as many as 150 users, saving the Web servers' CPU and memory resources for other activities like page generation. The E|X also performed data compression to speed up server response and conserve bandwidth.

Svendblad's group started out with a pilot test within the accounts receivable group, which took the biggest performance hit after moving to Peoplesoft 8. Setting up users was simple and transparent, Svendblad reports: "I just changed the local DNS setting, and when users clicked on the PeopleSoft icon, they were routed through the Redline box. We didn't have to change anything on our existing architecture, or on the WebLogic or PeopleSoft servers."

User response was fast and dramatic. "People were asking us if we'd put some magic juice in their system," Svendblad reports. When word spread, end users not involved in the pilot "were pounding on our door saying, 'Whatever you did for her, do for me!'" It may have been the shortest pilot on record: A day after the test started, the company routed all the other users through the Redline box.

TALLYING THE BENEFITS

Once the bulk of users was online, the benefits of the Redline device really began to kick in, Svendblad reports. Average CPU consumption during peak processing time plummeted from 80% or more to less than 15%. Bandwidth consumption decreased approximately 70%.

The E|X 3250 now handles SSL encryption, as well. "We have security without burdening our servers with managing certificates or with SSL," Svendblad says. The company also saves money on SSL certificates, since it needs only one for the Redline box instead of one for each server.

Over the past year, ChartOne brought its customer relationship management, HR and Hyperion Business Performance Management applications behind the Redline box. Most recently, the company added its View Manager: Chart Management Suite of ASP offerings to the set of applications front-ended by the E|X platform.

> After ChartOne installed the Redline Networks E|X 3250, user response was dramatically faster. "People were asking us if we'd put some magic juice in their system," says Henry Svendblad, director of IT.

ChartOne's hundred-odd remote and mobile users have completely eliminated their terminal servers and use a standard Web browser to access all applications, via the E|X 3250. "The user experience is improved, and our support costs are lower," Svendblad says.

The bottom line: ChartOne successfully implemented a Web-enabled ERP platform with a "single box solution" that addresses critical Web tier issues while dramatically improving the business case by increasing user productivity and avoiding costly hardware upgrades. End users now experience the same response time levels and productivity they had with customized fat clients — but IT no longer has the support burden. Says Svendblad: "I think that's pretty impressive."

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Scott Bradner

Our tax dollars, almost at work

About a year and a half ago the U.S. government released the "National Strategy to Protect Cyberspace." This report was mostly to get the Department of Homeland Security to organize, support and communicate responses to and protection from attacks on the U.S. cybertechnology infrastructure. Now the DHS Office of Inspector General has issued a report card on how DHS is doing that paints a mixed, but on the whole not very good, picture.

The cyberspace strategy (www.nwfusion. com, DocFinder: 3227) was comprehensive. It described five priorities DHS should take into account when considering U.S. cybersecurity and recommended eight specific actions.

According to the strategy, the highest priority was development of a national cyberspace security response system. The other priorities included: development of national cyberspace security programs for threat and vulnerability reduction systems; creation of programs for awareness and training; development of ways to secure government cyberspace; and establishment of national and international cybersecurity cooperation.

The eight actions listed in the strategy provide specific suggestions on ways to achieve these priorities.

The report card, titled "Progress and Challenges in Securing the Nation's Cyberspace" (DocFinder: 3228), notes that DHS has done a few cybersecurity things over the last year that were called for, but mostly says that DHS needs to do better.

DHS established a National Cyber Security Division (NCSD) about year ago to focus on its cybersecurity efforts. NCSD then established the U.S. Computer Emergency Readiness Team (US-CERT). Its Web site, www.us-cert.gov, has some useful information. But it seems to be largely redundant with the 15-year-old CERT Coordination Center (CERT/CC) at www.cert.org run under federal contract by Carnegie Mellon University when it comes to information about specific cybersecurity attacks and countermeasures.

NCSD also established the National Cyber Alert System, a trio of mailing lists run by US-CERT.

According to the report card, these lists had very little traffic even though a quarter of a million people had subscribed to one or more of them. NCSD also participated in a communication and coordination exercise run by Dartmouth College, hosted a National Cyber Security Summit and set up three government organizations dealing with U.S. government cybersecurity. This level of achievement seems low considering an annual budget of more than $75 million for the cybersecurity activity.

The report card said NCSD has yet to figure out how to prioritize its activities, set specific milestones for itself or figure out just how much money it will need to do its job. Nor has NCSD developed a strategic plan, the report said, defined a way to measure its performance, developed a formal communications process within itself and with other organizations, or figured out how to provide formal guidance on cybersecurity issues to the DHS.

Cybersecurity is an ever-more important issue in these troubled times. As one measure, the CERT has issued a couple hundred Technical Cyber Alerts so far this year. I'm not sure that the most effective way to fight this problem is to create another government bureaucratic effort; the government-funded CERT/CC has done quite well over the years and private efforts such as Symantec's security response Web site (www.symantec.com/avcenter/) do an excellent job in the areas they cover. But, if there is to be a government effort, it would be nice if we got more for our tax dollars than we have from DHS.

Disclaimer: Lots of our tax money pays for research at Harvard. I'm sure it is all perfectly justified, but I did not ask the university for its opinion.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sob.com.

SSO

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v-GO Authentication Management, which will support the use of smart cards, tokens and biometric devices for network sign-on. A module for linking to provisioning systems will follow, says Passlogix CEO Marc Boroditsky.

The latest version of v-GO 5.0 also now supports directories from IBM, Oracle, Critical Path and OpenLDAP, and databases from Oracle, IBM and Microsoft. Also new are tamper detection and user-credential caching.

Imprivata update

Imprivata says the new self-service password-reset feature for its OneSign appliance is aimed at reducing help desk calls.

"We were spending 35% of our IT time on password-related issues," says Paula Chesbrough, CIO of Eagle Bank in Everett, Mass. "We've reduced that workload to 10%."

The bank installed OneSign less than a year ago to improve its overall network security under regulatory pressure and to ease password duties in IT.

Also new in OneSign is fingerprint ID technology, which eliminates the need for a keyboard. A new self-updating client agent works much like anti-virus agents, updating itself with new rules and code automatically. Imprivata also has added reporting capabilities to track users.

OneSign, which comes with its own internal database for storing user credentials, can import those credentials from any directory that supports the Lightweight Directory Access Protocol. ■

IBM

continued from page 21

closed the Trigo acquisition and its purchase of Candle, which makes mainframe systems management software.

In 2003, IBM spent $1.8 billion on acquisitions, including the purchase of document management software maker Green Pasture Software. The Green Pasture deal is typical IBM, Murphy says. It wasn't a blockbuster, but it paves the way for IBM to help customers deal with document management challenges — including compliance with looming corporate governance legislation such as the Sarbanes-Oxley Act.

Whereas EMC paid $1.7 billion for document management vendor Documentum in late 2003, that's not usually IBM's style, Murphy says. "Green Pasture wasn't a big-bang acquisition, so IBM didn't have to spend nearly as much," he says.

Nonetheless IBM picked up technology that's complementary to its own and already used by a number of IBM customers, he says. Additionally, by choosing a smaller vendor, IBM still is able to partner fairly effectively with larger content management players.

Likewise, IBM's two most recent deals, Cyanea and Alphablox, were of small companies that already partnered with IBM. "IBM has an advantage over a lot of other companies when it comes to acquisitions, because it has such a strong ecosystem of partners," Murphy says. "It can test the waters through those partnerships pretty effectively."

The Cyanea purchase extends IBM's application problem management and resolution capabilities, says Rich Ptak, partner at Ptak, Noel & Associates. "Combined with Tivoli and Candle technologies, it will allow IBM to ship an end-to-end solution for application/transaction monitoring, problem detection and diagnostics, and [eventually] a problem resolution solution that functions in both the mainframe and distributed environments," he says.

The biggest challenge will be creating a single, integrated package, Ptak says. IBM has assembled all the pieces needed for management, monitoring, detection, diagnostics and repair, he says. Now "the pieces need to be assembled and shipped in an integrated whole," he says.

Market time

Integration is an issue in any technology acquisition. How quickly IBM's acquired technology gets assimilated varies. Sometimes it's fast: The same month that IBM announced it was buying Green Pasture, it provided details about its new DB2 Document Manager product based on Green Pasture technology.

In cases when IBM is buying one of its partners, API-level integration often is already available. Beyond that, IBM isn't always motivated to completely integrate acquired technology overnight, Murphy says. The priority is to get the products working together and beef up that integration over time. Keeping the products distinct for a time means IBM can charge for them separately, he says.

Looking ahead, Ptak suggests IBM could benefit from buying network device management technology.

Tools for mapping infrastructure relationships at the service level is another gap to be filled, Noel says. "Cyanea can do some of that, but only for [Java 2 Platform Enterprise Edition] platforms — and enterprises have a lot more than just J2EE," she says. Likely acquisition targets are Collation and Troux Technologies, Noel says. ■

In the bag

IBM snapped up two software companies in July, bumping its total to five such deals in eight months.

Acquired company	Primary business	Acquisition announced
Cyanea Systems	Application monitoring	July 2004
Alphablox	Business intelligence development tools	July 2004
Candle	Mainframe systems management	April 2004
Trigo Technologies	Product information management	March 2004
Green Pasture Software	Document management	December 2003

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Special Focus

APPLICATIONS: Contact applications.

Address book apps try to shake spam label

■ **BY CARA GARRETSON**

Plaxo, the free contact application that automatically updates address books via e-mail, has gained notoriety since it was launched just over a year ago. Now its creators are pinning the application's future on a paid, business-oriented version to create the company's first significant revenue stream. However, given the privacy concerns Plaxo raises and the widely held belief that the e-mails it generates are at best annoying and at worst spam, the application might hit a wall as it tries to penetrate corporate America.

Plaxo has garnered more than 2.5 million users who copy the address books in their Microsoft Outlook e-mail clients to the Plaxo server, which generates e-mails requesting contacts update their phone numbers or addresses, and keeps the server and local copy up to date. Plaxo doesn't charge users for the software, instead collecting $20 per year from customers interested in "VIP" support. The company also says there are plenty of small businesses using the tool, especially since it added group calendaring and expanded note-taking capabilities in Version 2.0 that was released in May.

Before year-end, the company plans to release a "premium" version — Plaxo officials won't yet say how much it will cost. With both individual and per-seat pricing, this version is aimed at the business market and adds the ability to automatically clean up address books (deleting duplicate entries) and a back-up and recovery capability.

Although the company thinks the premium version will appeal most to small businesses, the company also is setting its sights on larger outfits. "Our approach is going to be to enter organizations from the bottom," says Rikk Carey, Plaxo's vice president of engineering. "One day you may see us selling enterprise versions."

Yet the concerns that the Plaxo model raises — critics say collecting and storing contact information and relationships on a central server (see graphic) is risky for users — it might keep Plaxo out of many small businesses, nevermind large companies that tend to be more sensitive to letting information out of their networks. "It poses a huge risk to any company," says Will Hayden, senior network administrator at All Phase Communications, a telecom dealer in Seattle with 30 users on its internal network. "You're sending your database contacts over to a third party."

Plaxo isn't alone in this category; products from Corex Technologies, GoodContacts and others use a similar model to keep address books up to date. Corex is attempting to leverage the success it has found with its business-card scanner to sell its AccuCard service, which automatically sends update requests to contacts to corporations via e-mail once a quarter.

However, one analyst notes that competing against a free product like Plaxo is an uphill climb. "The number of adopters of Corex's service is not nearly as impressive as Plaxo's," says Avi Greengart, senior analyst with Jupiter Research. Corex charges $49.95 per year for AccuCard.

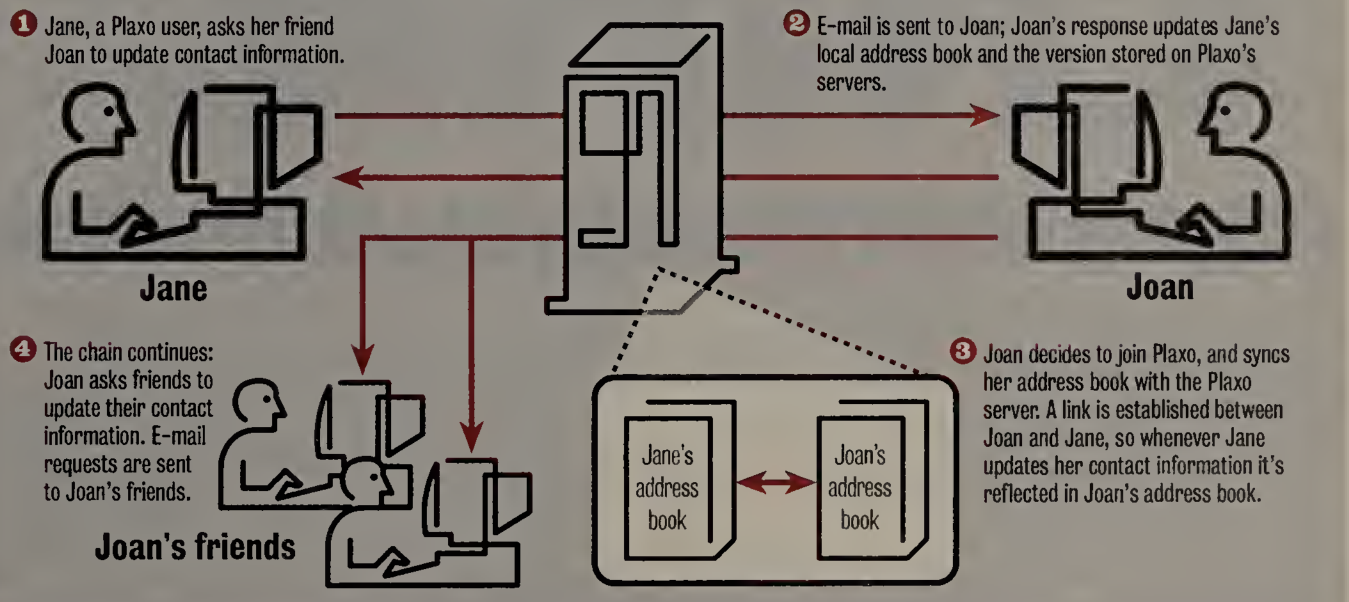
Widespread adoption of these types of applications in the corporate environment is questionable, Greengart adds, because it's difficult to convince users to pay for a service that's been available for free. "I'm still somewhat skeptical that anyone can make it work, but ... I would give Plaxo the nod. Scale does help; if you need a whole bunch of people to convert to a paid [model], it helps to have a whole bunch of people to begin with," he says.

Among the products in this category, Plaxo seems to have made the most noise. This is astonishing, considering the company spends no money on marketing or advertising, relying instead on its members to pull in new users. (Each Plaxo message sent out includes a sentence encouraging the recipient to join the network.) A quick review of opinion columns and Web blogs shows that Plaxo also has received the most criticism, particularly from people who feel the information it stores is invaluable and easily could fall into the wrong hands.

"The notion that a central place is collecting relationships makes me nervous. I'm in your contact book and you can find a whole bunch of people who are related [to me] .... that's great for target marketing" says David Jameson, founder of DigiPortal, which makes an e-mail challenge-response tool for verifying message senders by forcing them to validate their identity before a message is received.

The power of the network

Plaxo attracts new users by relying on members to sign up their contacts.



❶ Jane, a Plaxo user, asks her friend Joan to update contact information.

❷ E-mail is sent to Joan; Joan's response updates Jane's local address book and the version stored on Plaxo's servers.

❸ Joan decides to join Plaxo, and syncs her address book with the Plaxo server. A link is established between Joan and Jane, so whenever Jane updates her contact information it's reflected in Joan's address book.

❹ The chain continues: Joan asks friends to update their contact information. E-mail requests are sent to Joan's friends.

The oft-repeated response from Plaxo, as outlined in the privacy agreement posted on the company's Web site, is it does not share its users' information with any third parties. And, if Plaxo is bought or goes into bankruptcy, users will be alerted and given the opportunity to delete their information from Plaxo's servers before ownership changes hands, Carey says.

However, Carey acknowledges that many of the privacy concerns directed at Plaxo are valid. "We live in a time where the world is pretty disruptive; there's crazy stuff going on. By Plaxo's nature, we tickle that [privacy] concern, you get an e-mail from someone that shows your personal information, it's a little scary," he says. "People assume the worst."

To help calm these concerns, Plaxo recently added a feature that lets the recipient of a Plaxo e-mail challenge the sender to prove how they know each other. Plaxo tracks when its users are challenged, and if a particular user gets an abundance of challenges (Carey says 10 would be considered a lot) then the user is kicked off.

From a privacy standpoint, there's no reason for businesses to avoid using Plaxo, says John Pironti, a security consultant at Unisys who advises the computer maker's large enterprise customers. "The privacy agreement is solid, and Plaxo seems to be abiding by it. Everything in security is about balance, and here the benefits outweigh the risks," Pironti says. However, he questions whether large companies will need it. "A lot of corporations have been driving this concept internally — there's a lot of push to put in directory systems with active notification — so I wonder about the market viability for an enterprise version."

Another complaint against Plaxo is that the e-mails it generates are spam. Proponents deflect that criticism, saying Plaxo e-mails simply request that someone the sender knows updates their contact information and are not commercial messages.

Businesses will have to give this issue a hard look before sanctifying the application for corporate use, lest they be accused of sending irritating messages or, worse yet, junk e-mail. In addition, many companies might not want to be viewed as Plaxo advertisers.

Whether Plaxo gains a foothold in the small-business and eventually enterprise markets likely won't affect the product's popularity among individual users. What it might well affect is the company's viability; Plaxo has attracted $20 million in funding and is banking on the paid version of the application to increase the small amount of revenue it collects for VIP support, according to vice president of marketing Scott Epstein. That leaves the paid version of Plaxo to carry the weight of the company and to ensure the free version stays that way. ■

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Short Takes

■ **Global broadband prices fell** sharply in the first half of the year as cable operators moved to meet the challenge of lower prices from DSL, according to a research report. Monthly rental fees for broadband cable services dropped 16% in the first six months of this year, while DSL fees were slashed by 13%, reported researcher Point Topic. Broadband cable service providers aggressively cut prices during the first half of the year to bring their fees closer to those of DSL services, which previously were reduced to attract new subscribers. Cable operators surveyed said the average monthly rate for entry-level cable modem services declined from $39.20 to $32 over the period, while DSL prices dropped by $2.50 to $29.50.

■ **Amedia Networks,** a developer of Ethernet broadband access products, last week announced that it has expanded its technology licensing agreement with **Lucent.** Lucent has delivered to Amedia several Bell Labs-developed technology designs for Amedia's PG1000 premises gateway and AS5000 Aggregator Switch. As part of the agreement, Lucent will provide additional technology designs for further product enhancements for the PG1000 and AS5000. Amedia also is enhancing its CS1200 Ethernet core switch with a suite of software features to improve traffic management and security, and design improvements to reduce its production cost.

■ **Tata Consultancy Services,** which provides offshore outsourcing services, is adding what it calls a safety net to its application development offerings. The consultancy is partnering with **iRise** to add iRise's Application Simulator technology to its list of services. IRise specializes in providing companies with tools to look at and review applications before a single line of code is written so that service providers and customers have a clear understanding of the intended result.

Cingular touts mobile e-mail services

■ BY JIM DUFFY

Cingular Wireless last week launched two enterprise-class e-mail services designed to let users securely access corporate e-mail resources from mobile devices.

The services include customer premise- and network-based offerings called Xpress Mail Enterprise Edition and Xpress Mail Network Edition, respectively. They are based on software from Seven Networks, a developer of mobile e-mail servers.

Seven has a relationship with Cingular and supplies comparable products to mobile operators such as KDDI, Orange, NTT DoCoMo, O2, SingTel and Sprint.

Enterprise Edition puts a dedicated wireless mail server behind the corporate firewall for businesses that prefer to manage their own mobile e-mail resources. Network Edition is a managed service hosted by Cingular that operates behind a network-based firewall.

New e-mail service

Cingular's Xpress Mail Enterprise Edition and Xpress Mail Network Edition feature:

- Push-based data access for Microsoft Exchange, Lotus Domino, IMAP and POP content.
- Customizable synchronization scheduling and alerts.
- Multiple in-boxes from the same user interface.
- Support for 128-bit AES, SSL and VPN security.

Network Edition is designed for businesses that do not want to own or manage the technology — Cingular manages the service from its data center. Once a business chooses between the behind-the-firewall and managed service options, users can be set up centrally by IT or individually, based on the company's requirements.

Each service also features reporting tools to monitor usage and service.

Both services are designed to work on a variety of mobile devices, including palmOne's Treo 600, which Cingular offers. The services are intended to be "device-agnostic" — letting multiple wireless devices securely connect to multiple e-mail platforms, Cingular says.

"This is really an attempt by the carriers to offer something that has a larger addressable market and is more affordable than BlackBerry," says Mark Lowenstein, managing director of wireless consultancy Mobile Ecosystem. "It's playing off the success of BlackBerry. A lot of people want a behind-the-firewall enterprise solution to

See Cingular, page 30

VoIP vendors: Regulation hinders growth

■ BY GRANT GROSS

U.S. regulators can play an important role in the spread of VoIP services by showing the rest of the world that the best way to encourage growth is by limiting regulation, according to those who sell VoIP services and equipment.

A consistent "light touch" approach on regulation throughout the U.S., European Union and other countries also would help VoIP grow, said vendors of VoIP-related products at a recent FCC forum on global IP regulation in Washington, D.C.

Regulators in many nations still question how to regulate VoIP services, said Jonathan Draluck, vice president of business affairs and general counsel for iBasis, a VoIP service provider.

"Nothing has been a clearer beacon and signal for these countries and these regulators than to hold up the U.S. as an example," he said. "The U.S. has had a light regulatory touch, and this has fueled, more than anything, the innovation and the growth of this industry."

The six vendors seemed united in their call for a largely hands-off approach to regulating VoIP, as opposed to the heavy regulations that traditional telephone carriers face from the FCC. But asked if regulation might be needed if competitors such as cable companies give priority to their own VoIP products, at least one panelist advocated that kind of regulation.

If cable companies gave priority to their own VoIP packets over competitors' products, VoIP providers might petition the FCC to step in, said Jeff Pulver, president and CEO of Pulver.com, provider of the Free World Dialup VoIP service. "If cable operators or other operators are discriminating against traffic, such that not every packet is the same type of packet ... if that could be proven, that's a problem," Pulver said. "I do think commercially around the world, we need to have equal and fair access. Right now it's not regulated; it's just assumed that everybody plays fair."

But Pulver also criticized amendments to a U.S. Senate bill intended to keep VoIP free of most regulation. In July, the Senate Commerce, Science and Transportation Committee approved the VoIP Regulatory Freedom Act, but amended it to allow states to require VoIP applications to provide 911 services and to require VoIP providers to contribute to state universal service programs and to pay intrastate access charges to other telecom providers.

Others, including lawmakers from rural states and the U.S. Department of Justice, have pushed for regulations. Some lawmakers in rural states want VoIP to contribute to the Universal Service Fund, which helps fund telecom services in rural and poor areas. Law enforcement officials want wiretap regulations to apply to VoIP and traditional telephone calls. Some traditional telephone carriers say VoIP should face the same set of regulations as they do.

But panelists said old telecom regulations don't make sense for IP services, where state or national borders do not apply. VoIP has the potential to break down not only national boundaries but boundaries between devices such as PCs, PDAs and telephones, and traditional ways of regulating those devices no longer apply, said Al Safarikas, vice president of wireline networks for Nortel.

"The world's innovators are right now working on devices that we probably can't think of in this room in 100 years," he said. "IP will enable that, and all those boundaries will come down. [Regulatory] limits and boundaries are broken by technology."

Gross is a correspondent with the IDG News Service.

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EYE ON THE CARRIERS

Johna Till Johnson

Figuring out information stewardship

I've been doing a lot of work these days on the topic of "information stewardship." Essentially, this is the discipline of ensuring that a company's data is:

- Accurate and as complete as possible.
- Appropriately secured, with access granted only to appropriate parties.
- Auditable and compliant with pertinent privacy and disclosure guidelines.
- Stored on the most appropriate and effective storage mechanisms.
- Reliably backed up and available in the event of a failure.

The formal equation expressed here is that information stewardship equals data quality management plus information protection plus compliance plus information life-cycle management plus disaster-recovery/business-continuity planning (that is: IS = DQM + IP + C + ILM + DR/BCP).

In some large organizations, information stewardship is the single biggest issue. For companies that have grown through mergers and acquisitions, or are consolidating data centers, implementing effective information stewardship is mind-bogglingly challenging. "How do recognize that I see a customer in 15 different databases in 10 or 12 ways?" asks the CTO of a multibillion-dollar health services organization.

The stakes have never been higher. Regulations such as the Health Insurance Portability and Accountability Act, Gramm-Leach-Bliley and Sarbanes-Oxley mandate information accuracy and privacy, with stiff penalties for non-compliance. Moreover, the cost and overhead of poor information stewardship is equally steep: Critical data that's necessary to manage an organization's day-to-day operations is missing, inaccurate or corrupt.

Much of this isn't exactly news — IT executives doubtlessly have wrestled with information stewardship issues since the days of the ENIAC. What's new, though, is the degree to which the challenges of information stewardship, and many emerging telecom technologies intersect.

For starters, telecom companies are among the companies facing acute information stewardship challenges. For many telcos, simply finding out what information resides in which database is a significant challenge. Additionally, telcos such as MCI that were formed from the merger of dozens of smaller companies have customer data distributed among dozens of incompatible databases. (That's one reason your phone company can't get your bill correct.) Phone companies are therefore among the most sophisticated consumers of data quality management, which as noted is a key component of information stewardship.

Even more intriguingly, telecom is a critical element that enables other aspects of information stewardship. Information is increasingly stored (at least in part) offsite, which means that providing an effective, secure, reliable circuit to that stored information is critical.

Most telcos are just beginning to understand both the issues and the roles their services can play. In the late 1990s there was a boomlet of "online storage" as companies such as Giant Loop envisioned that companies soon would begin storing their data "in the cloud." A small problem was that most companies understandably don't want to park critical data with a telco that can't even create accurate bills. As a result, the services failed, which many interpreted to mean that telcos had no information stewardship role.

That perspective's equally shortsighted: Networking is a critical component of the information stewardship equation. To see how, stay tuned.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

Cingular

continued from page 27

access mobile e-mail but on a much broader variety of devices — the BlackBerry experience on any mobile device."

Cingular also supports 750,000 BlackBerry users, Lowenstein says.

"Cingular has made some big bets around applications that they are emphasizing," he says. "Messaging is one."

Both editions use common security and encryption technologies such as 128-bit Advanced Encryption Standard, Secure Sockets Layer and VPN. They also include features such as push-based, real-time access to data on Microsoft Exchange, Lotus Domino, Internet Message Access Protocol and POP servers; customizable synchronization schedules and alerts; and access to multiple e-mail in-boxes and accounts from the same user interface.

The services provide global access so users can securely check their e-mail from any browser. Also, data is never replicated to third-party servers outside the firewall.

Enterprise Edition and Network Edition are available now on palmOne's Treo 600 handheld wireless device. Airtime is $30 per user, per month, including 5M bytes of data usage, or $40 per user, per month, including unlimited data usage.

Enterprise Edition requires a one-time setup and installation fee of $1,500, and a one-time connection fee of $1,000. ■

Technology

■ AN INSIDE LOOK AT THE
TECHNOLOGIES AND STANDARDS
SHAPING YOUR NETWORK

Remote optimizers aid consolidation

■ **BY YUVAL HAGER**

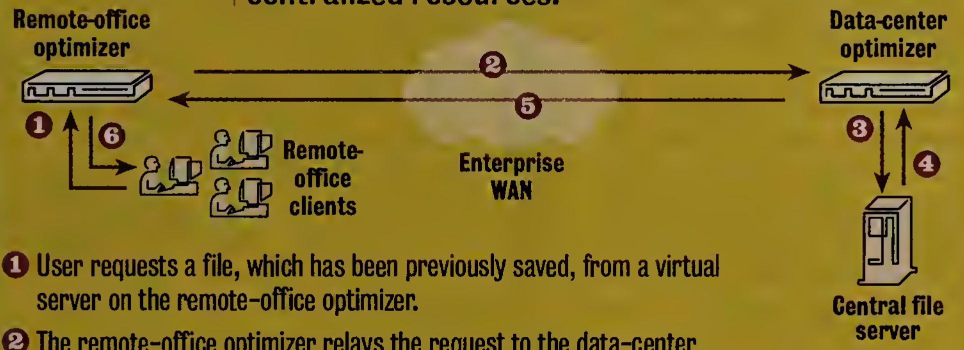
Organizations with branch offices are consolidating their networks to control the costs of managing their IT infrastructures. But because of latency posed by WAN connections, it's difficult to provide remote-site users with the network performance they require while ensuring the integrity of centralized data.

Remote-office optimization appliances circumvent these challenges by enabling real-time access of data over WANs. This is accomplished by combining optimization techniques such as compression, dynamic caching, binary delta calculation and transaction aggregation. By deploying remote-office optimizers, organizations can offer their users real-time, synchronous access to centralized resources, ensuring the integrity and coherency of organizational data and user productivity levels at branch offices.

■ HOW IT WORKS

Remote-office optimizer

A remote-office optimization appliance enables server consolidation by providing real-time access to centralized resources.



❶ User requests a file, which has been previously saved, from a virtual server on the remote-office optimizer.

❷ The remote-office optimizer relays the request to the data-center optimizer for processing.

❸ The data-center optimizer requests the file from the actual, or central, file server, performing authentication and access rights verification just as if the client communicated directly with the central file server.

❹ The central file server grants the data-center optimizer access to the file. The data-center optimizer examines the file to see if any changes have been made.

❺ If the file was modified, the data-center optimizer extracts and compresses the changes to send to the remote-office optimizer.

❻ The remote-office optimizer updates the file in its records if changes have occurred and delivers the file to the user.

Dual optimization

A remote-optimizer appliance is installed at each branch and in the corporate data center. Because the solution must be bidirectional, optimizing traffic to and from a data center and remote-branch offices, devices are required in both.

A remote-office optimizer in a branch office optimizes traffic flowing to a data center, and a remote-office optimizer in a data center — also called a data center optimizer — optimizes traffic to remote branch offices.

Once the remote-office optimizers are installed, administrators can centralize all organizational data at their data centers or headquarters. At the same time, file servers, storage and back-up resources can be removed from branches. To provide branch-office users with experiences comparable to working with local file servers at headquarters, remote-office optimizer appliances facilitate the retrieval and saving of data over WANs.

When the remote user saves a file it is forwarded to the data center and saved to the central file server. The file also is saved to the remote-office optimizer's virtual server. Upon notification of the save from the central file server, the data center optimizer notifies the remote-office optimizer, which notifies the client. All messages and notices are issued by the data center optimizer, not the remote-office optimizer.

When the user saves changes to the file, the remote-office optimizer compares the new file with the previously saved file. Only the changes from the previously saved file, the delta, is sent across the WAN. When other users in the branch access the same file, they are served by the remote-office optimizer.

If the file was changed, the delta is sent by the device in the data center, which knows the state of the file on the branch device. The record on the remote-office optimizer is updated with the deltas as it serves the file to the user. Subsequent changes will be compared with this updated record.

In addition to reducing traffic by transferring only deltas and optimizing all forwarded traffic, remote-office optimizers apply application-level optimization for certain protocols and for a file system itself, circumventing WAN latency exacerbated by chatty protocols.

Because remote-office optimizers operate synchronously, network administrators enjoy a high degree of control over their distributed networks. They can boost security by enforcing authentication, authorization and auditing from their data centers.

Also, because all corporate data is centrally located, the deployment of security, storage and back-up devices is significantly simplified, as are the formulation of disaster-recovery protocols. Because there is no critical data in the branches, there is no need for storage, backup or the strictest security measures at those locations.

In addition to letting organizations consolidate resources across their distributed networks, remote-office optimizers enable consolidation within each branch office. They provide print, DNS, Dynamic Host Configuration Protocol and other server functions.

Use of a remote-office optimizer helps companies reduce capital and operational costs of implementing and maintaining remote-office IT infrastructure.

Hager is founder and vice president of research and development of DiskSites. He can be reached at yuval@disksites.com.

Ask Dr. Internet By Steve Blass

We're trying to implement streaming audio and video with NetMeeting on Windows XP Professional. We're using a USB camera that works well with the software it came with, but with NetMeeting the video being sent shows only a black screen. Turning off the desktop firewalls didn't help. Any ideas?

Setting XP QoS RSVP to manual in the Control Panel/Administrative Tools/Services applet might fix it so the sound and video will work, depending on how you have configured the rest of your XP network settings. Also try lowering the screen resolution on the receiving computer(s) to 800 by 600 pixels to better accommodate the video being received. In order to receive incoming NetMeeting calls, the desktop firewall must allow traffic on TCP ports 1503 and 1720. Disabling the firewall is one way to open the ports during a meeting. A good resource for troubleshooting NetMeeting on XP is available at www.nwfusion.com, DocFinder: 3234, where you can find information and pointers on using NetMeeting with newer cameras that use Windows Digital Media driver software rather than Video For Windows drivers. Some camera vendors also provide downloadable drivers to help solve the problem.

Blass is a network architect at Change@Work in Houston. He can be reached at drinternet@changeatwork.com.

GEARHEAD
INSIDE THE NETWORK MACHINE
Mark Gibbs

Power line to the people

Last week we discussed the delights of power-line networking based on the HomePlug standard.

HomePlug nodes can communicate at up to 14M bit/sec. Note that we wrote "can" and "up to" — anything that degrades the signal, such as interference and gremlins or more than 16 HomePlug devices, will cause the power-line system to back off to find a reliable throughput rate.

You'll find that each node pair in a HomePlug network likely will connect at different data rates because each individual path across the power lines will have different transmission characteristics.

Actually, the maximum of 16 devices is the figure most vendors quote, but a paper from the Massachusetts Institute of Technology, "Moving HomePlug to Industrial Applications with Powerline Communication Network" (www.nwfusion.com, DocFinder: 3230), says that for best performance you should network only up to 15 nodes using the HomePlug 1.0 standard.

So, what are the limitations other than the number of devices? First, distance: HomePlug signals will travel a maximum of about 300 meters of wire, notwithstanding interference from electric motors, fluorescent lights, halogen lamps, switching power supplies and dimmer switches. You also should avoid connecting HomePlug devices to power sockets using extension cables and multi-outlet power strips with surge suppressors.

There also are wiring limitations. While HomePlug signals have no problem passing through circuit breakers, they won't pass through power transformers and will not reliably cross phases.

This latter issue is not that bad in practice. In a report titled "HomePlug 1.0 powerline communication LANs — protocol description and performance results" published in the *International Journal of Communication Systems* (DocFinder: 3231), the authors note that: "Despite these impediments, tests of the present version of the HomePlug 1.0 power-line devices in some 500 homes show that 80% of outlet pairs will be able to communicate with each other at about 5M bit/sec or higher, and 98% will be able to support data rates greater than 1M bit/sec: Field tests suggest that the power-line network will provide connectivity in situations where some wireless networks will fail due to large attenuations caused by distance or obstructions such as intervening walls or furniture."

Also check out the paper "HomePlug Field Test Results: A White Paper" (DocFinder: 3232) issued by the HomePlug Powerline Alliance.

An important issue with HomePlug is privacy. HomePlug signals can "escape" from your power wiring and be picked up by your neighbors. To get around this, HomePlug provides data security based on 56-bit DES encryption.

Using a vendor-supplied utility you enable encryption by setting a password into each HomePlug transceiver — all devices that are to communicate must use this password.

In our tests of Netgear and Linksys products, we found that HomePlug technology works amazingly well. As we noted last week, all the products were easy to install but the documentation and management utilities could be improved. We found the utilities were inconsistent in detecting the transceivers, which could not be easily explained because when they were found the connections were considered good or excellent.

That snafu aside, we had no problem getting reliable connections between transceivers. Indeed, we are hooked. Power-line networking is a powerful tool to have in your "we need a quick connection for a reasonable price" tool box.

The *International Journal of Communication Systems* report we mentioned earlier concludes with: "In-home [power-line communications] have the potential for significant improvements. . . . The HomePlug Powerline Alliance announced plans for the development of next-generation powerline specifications . . . called HomePlug AV . . . intended to provide 100M bit/sec throughput, and will be designed to support distribution of data and multi-streaming entertainment, including high definition television and standard definition television, throughout the home."

The HomePlug AV specification has moved forward reasonably quickly, and the HomePlug Powerline Alliance note on their Web site (DocFinder: 3233) that "HomePlug AV products will likely be available for the 2004 holiday season." We know what we want for Christmas.

So tell us your home networking tales — best response by the 16th gets a rosebush. Entries to gearhead@gibbs.com.

Cool Tools

Quick takes on high-tech toys

By Keith Shaw

D-Link's Wireless Internet Security Camera captures video at up to 30 frames/sec at VGA resolution.

D-Link launches 802.11g network camera

D-Link Systems last week announced an 802.11g wireless LAN-based network camera that includes remote pan, tilt and zoom features.

The D-Link Wireless Internet Security Camera (Model DCS-5300G) is the latest in D-Link's SecuriCam Network line of network cameras, which let users view camera images remotely on the Internet via a Web browser.

The camera connects to a network over 802.11g wireless or Ethernet and supports up to 30 frames per second at up to 640-by-480-pixel resolution with MPEG-4 video compression. The Charge Coupled Device sensor helps in low-light situations, and a microphone is integrated so users can hear what the camera is watching. Users can control the view through its pan (270-degree), tilt (90-degree) or 4x-digital zoom features.

Security features such as Service Set Identifier (SSID) filtering, and 64- and 128-bit Wired Equivalent Privacy (WEP) encryption are included. The camera costs about $550 and is scheduled to be available later this month.

Print onto a CD or DVD directly with Primera's Signature Z1.

Primera introduces CD/DVD printer

Primera Technology has introduced a printer that can print directly onto a CD or DVD. The $140 Signature Z1 is geared toward home and office users, and is available now.

The Signature Z1 prints on up to four different areas, or quadrants, of a disc by having the device spin the disk and then apply the ink in that quadrant. Primera says it takes less than 1 minute to print to a disc. The device connects to any PC with Windows 2000 or XP via USB cables. Label design software is included. The ribbon for the printer can produce about 100 discs (in cases where all four quadrants are used) before it needs replacement.

Have access point, will travel

SMC Networks has announced its EZ Connect Traveler's Kit, a travel-ready 802.11g wireless access point, USB cable, Ethernet cable and power cord. The $100 kit will be available by the end of August, SMC says.

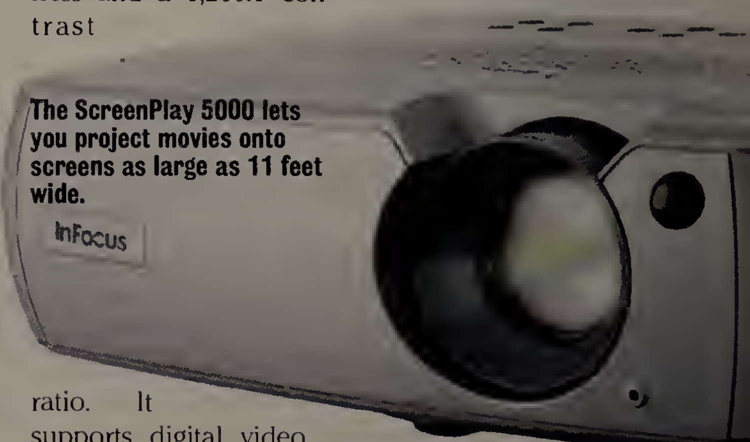
The Traveler's Kit (Model SMCWTK-G) includes a network device that can operate in five modes: access point, Ethernet bridge, repeater, point-to-point bridge or point-to-multipoint bridge. For users on the road or those visiting an office, the device connects to a wired Ethernet port and then can provide wireless connectivity for other users. As an Ethernet bridge, the device connects to any device with an Ethernet port (such as a gaming console or printer) and makes it wireless. As a repeater, it can help extend the range of an existing wireless network.

Security features include support for 64- and 128-bit WEP, Wi-Fi Protected Access, media access control address filtering and the ability to disable SSID broadcasts.

Create your own movie theater

InFocus has launched a consumer-focused projector that can project high-definition images. The ScreenPlay 5000 costs about $2,000 and can project images up to 11 feet wide, the company says.

The 7.5-pound ScreenPlay 5000 connects to a home electronics device (such as a DVD player, satellite receiver, or high-definition cable or satellite receiver). The device supports a 16:9 aspect ratio, and has 1,100 lumens of brightness and a 1,200:1 contrast ratio. It supports digital video inputs, and has automatic keystone shape correction capabilities. The device comes with a 12-volt screen trigger, which can be used to automatically raise or lower an electronic screen.



The ScreenPlay 5000 lets you project movies onto screens as large as 11 feet wide.

Shaw can be reached at kshaw@nww.com

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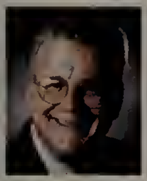

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ON TECHNOLOGY

John Dix

Computing show deaths leave void

Is the collapse of CeBIT America last week, six weeks after the announcement that Comdex was canceled for 2004, all the evidence we need to conclude there is no longer a need for big, general-purpose computing conferences?

CeBIT America, which just staged its second U.S. show in June in New York, hoped to mimic here the enormous success CeBIT has enjoyed in Germany. The Hannover, Germany, show this spring lasted six days, hosted 6,400 exhibiting companies in 3.6 million square feet of display space and attracted more than 500,000 attendees.

Even in its glory days Comdex only achieved half that.

When it was first eyeballing the U.S. in 2002 the CeBIT show organizers believed they could establish a beachhead here because: 1) Comdex was already on the ropes and CeBIT reasoned it would be the obvious alternative when the market bounced back; 2) Comdex had lost its focus and the U.S. was ready for a dedicated enterprise IT event; and 3) CeBIT's focus on what the organizers called Information & Communications Technology (ICT) was a differentiator.

The writing was indeed on the wall for Comdex in 2002 and the "be all things to all people" nature of Comdex left it vulnerable to a show like CeBIT that focused strictly on enterprise IT. But the ICT thing? Every show from Comdex to NetWorld+Interop to Comnet has been beating this drum for years, so one of the company's purported differentiators was simply more of the same old stuff.

Most importantly, instead of the market bouncing back it went from bad to worse. Comdex continued to lose exhibitors and attendees, and by February 2003 show owner Key3Media Group filed for bankruptcy. Key3 came out of bankruptcy in June of that year, the same month CeBIT America launched in New York.

But CeBIT never really got out of the gates. The first show attracted only 8,500 attendees instead of the 20,000 envisioned, and the second show in May was anemic. Even one keynoter — Thomas Siebel, CEO of Siebel Systems — blew it off, sending a stand-in at the last minute.

So it would appear the world doesn't need generic computer trade shows any more. Computing vendors seem content to reach customers with online tools like e-mail and Webcasts. It would be a shame, however, if that is all we're left with. Conferences let the buyer get a taste of new technologies, meet many companies in a short amount of time, learn, and rub elbows with industry colleagues.

Maybe it's time for NetWorld+Interop to encompass more computing topics.

— John Dix
Editor in chief
jdix@nww.com

opinions!

Telling it like it is

Rock on, Denny Strigl. In "Wireless directory draws cheers, jeers" (www.nwfusion.com, DocFinder: 3222), the Verizon Wireless CEO is quoted as saying, "Let's, as an industry, stop pushing something on customers that they clearly don't want. It's a dumb idea." I'm glad that I'm a customer of a company like Verizon with a CEO that not only isn't going to publish my number, but actually stood up to his peers in the industry by calling a spade a spade.

Charles O'Halloran
Vice president of operations
Engineered Business Systems
Boca Raton, Fla.

Yes to ad blocking

Regarding Mark Gibbs' Backspin column "Adverts No, blocking Yes" (DocFinder: 3223): It seems that Internet marketer Stephen Mahaney has a serious problem.

When I get onto the 'Net, it's for a reason. If an ad is stored on my PC and suddenly appears when I don't want it to, that's an invasion of privacy. Companies are using cookies, spyware and anything else they can find that will get their propaganda into my PC, and if they're lucky, in front of my eyes.

If Mahaney wants to complain that he should have a right to show me his ads, I will counter with my right to privacy.

Norris Mantooth
CIO
Norris3.com
Plano, Texas

These Internet marketers are two-faced. They don't like the fact that Norton turns on ad blocking without giving users an option at install or upon the first block that lets them choose to use it. However, the marketers' own pop-ups never give users a choice to say yes or no to ever seeing any of their ads again. They should live by their own supposed code of ethics and the first pop-up should give users the chance to say, "Never show me another pop-up from this domain."

Chuck Johnson
Kokomo, Ind.

Stephen Mahaney will gain no sympathy from me as long as he and his breed continue to barrage my computer with unsolicited commercial drivel. I pay hard-earned money to connect to the Internet, and I find it astonishing he feels he has the right to consume my bandwidth to tell me something I don't want to hear.

While I agree that Norton should be more open about what the product is doing, the majority of people who purchase the package will find this option useful.

Weat Mattis
Technical support analyst
Ingersoll-Rand Industrial Solutions
Davidson, N.C.

I suspect there might be an issue of semantics here. I imagine most of the IT-elligentsia consider ad blocking to be an integral part of a firewall and, therefore, expect all firewalls to block ads. Considering the malware threats contained in pop-ups, I don't disagree.

On the other hand, one could make a case that ad blocking and firewalling are separate issues. In certain circumstances, I can see wanting to have firewall capabilities but without ad blocking. I guess the perspective depends on which side of the fence begets your revenue: ads or security.

Clinton Troutman
Fort Worth, Texas

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

More online! **www.nwfusion.com** Find out what readers are saying about these and other topics. **DocFinder: 3221**

MikeKeefe2004
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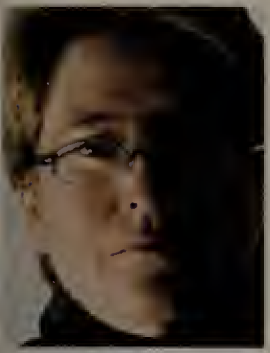

DEMO INSIGHTS

Chris Shipley

Moving to service-based computing

Last year, as Demomobile 2003 was nearing, I developed a mantra of sorts. As often as I could, I asserted that mobile technology had turned us into "always-on people" — empowered buyers of technology who would usher in a new era of "device computing," in which computing would shift from desktop and laptop PCs to smart phones and handheld devices that can access data anytime, anywhere. Now, a year later, I think I was right, even if I did have it backward.

The computing shift isn't about hardware devices, as I initially thought. It's about the software architectures that support those tools. Rather than device computing, we're moving to an age of service-delivered computing. In this model, service providers — whether application service providers (ASP), corporate IT organizations or even a desktop computer you manage yourself — make applications and data available to individuals who connect to these services through a variety of secure devices.

Certainly, we can understand and accept this trend in the form of managed software services — ASPs such as Salesforce.com or NetLedger. Enterprise IT has opened centralized applications to data input from and reporting to mobile workers, and now enterprise applications are being architected with mobility integrated in the business process.

You can see the next ripple in this spreading paradigm in data services offered to mobile phone users. As higher broadband wireless networks come online, carriers will offer a range of data services that go well beyond news, traffic and weather. Carriers have a huge and virtually untapped opportunity to become the data center for their mobile wireless customers.

The ripples will extend even further, as presaged by AllenPort, a Philadelphia start-up that in February at Demo 2004 introduced a service-based computing architecture, in which applications, configuration information, data and even Web history and bookmarks are stored on a central service. The company is finding traction with broadband network operators that see the low-cost hardware, high-value service model as the right approach to delivering computing functionality to their customers.

DEMOmobile 2004

AllenPort might be the most public example of this new service-delivered computing model, but the company is by no means alone. At Demomobile 2004 on Sept. 8-10 in La Jolla, Calif., we'll highlight at least two companies making big bets in this area. (To register for Demomobile 2004, go to www.nwfusion.com, DocFinder: 3224.)

Will service-delivered computing be widespread in a year? Two years? Three or more? While the timeline might be a mystery, change is afoot, marked not by devices but by the services to which those devices connect. Change is driven harder and faster than ever before by those empowered, demanding, always-on people.

Shipley is executive producer of The Demo Conferences, a Network World*-owned event that showcases emerging technology products and services. She can be reached at chris@demo.com.*

Carriers have a huge and virtually untapped opportunity to become the data center for their mobile wireless customers.

REALITY CHECK

Thomas Nolle

Another Cisco face-lift?

For some, Cisco's recent acquisition of Procket's intellectual property seems to signal that the network giant has no strategy. What it really signals is that Cisco has too many strategies and that at least some in the company are trying to fix the problem. The question now is whether they can succeed.

Cisco is under competitive pressure on many fronts. Juniper and Avici Systems are selling into Cisco carrier accounts, and many believe that the need to compete with these two vendors is the justification for Cisco's HFR efforts, culminating in the release of the new high-end CRS-1 family. At the same time, low-cost competitors such as 3Com are nibbling at the price-sensitive part of the edge router and LAN market, and rival Juniper has entered the customer edge space with an access router and the NetScreen Technologies security product set.

On the customer side, Cisco's favored competitive local exchange carriers and interexchange carriers are pretty much gone, and its one carrier star, AT&T, is clearly in a serious transition of its own (and an Avici customer). The RBOCs, with whom Cisco has always had a strained relationship, threaten to be the only players left in the carrier market. At the enterprise, companies that used to depend on Cisco for planning their networks are looking more to integrators and consultants for their network planning, which dilutes Cisco's influence in the accounts.

It's Cisco's organization that's making these pressures hard to deal with. In the bubble period, Cisco created a bunch of product-specific organizational silos that divided up development and marketing into little tactical niches. This structure proved effective for Cisco in the tactical market that emerged after the bubble burst. It's not so great in the current market, when enterprise customers and service providers are taking a more strategic view and want a compelling vision to answer their network concerns. Who speaks for Cisco strategy? A whole choir of infighting product promoters. That's why Cisco recently named Charlie Giancarlo as CTO, and his first challenge will be dealing with the product transition that drove the Procket decision.

The Procket chips and the CRS-1 architecture into which they have to fit are the basis for a new Cisco product architecture that eventually will extend from core to edge. If Cisco can create a new architecture for its product line, with a modular hardware system and a modular version of IOS, it can sing with one strategic voice when buyers ask for a product. At the hardware level, Procket's low-cost chips with low power and heat dissipation are a key element. But what about the organizational level? Every step of the way, the new products will collide with all the products Cisco already has in that space.

If Cisco is going to get into strategic product development and marketing, it has to break up its product silos. We'll know whether Cisco is remaking itself when we see the company pull its development groups out of the product silos and make them independent. Independent development can build to one strategic concept that takes the architecture of the CRS-1 and the contribution of Procket and builds not only a new product family but also a new Cisco. Otherwise, internal politics will chew up the notion of a new, harmonized Cisco product set.

For decades, Cisco has been the champion of a network with distributed features and intelligence — IOS being the vehicle for doing the distributing. Today, both enterprise users and carriers want dumb cores with intelligence moved more to the edge. The new CRS-1/Procket combination could produce this shift, and Giancarlo could shepherd it along — if every product manager doesn't develop a private strategy.

What happens if Cisco doesn't shift to the strategic vision of product development? In military terms, it's called "defeat in detail." Product islands become less capable of pulling other Cisco products through and less effective as platforms for network-wide features that excite buyers. Margins shrink, profits fall, stock price dips — you get the picture.

It's show and tell time, Cisco. Show us you're a strategic leader again.

Nolle is president of CIMI, a technology assessment firm in Voorhees, N.J. He can be reached at (856) 753-0004 or tnolle@cimicorp.com.

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Word up

How do you set your spam filters to block key words when the Viagra mail has to get through?

BY STEVE ULFELDER

IT EXECS AT SPAM-MAGNET INDUSTRIES COME UP WITH CREATIVE WAYS TO BLOCK SPAM WHILE KEEPING LEGITIMATE E-MAIL FLOWING.

Believe it or not, Dan Lukas, lead security architect at Aurora Health Care, makes no attempt to halt e-mail with "Viagra" in the subject line.

Here's why: Junk e-mailers learned long ago that when properly capitalized and spelled, Viagra (along with cousins Levitra and Cialis) is a dead-bang, Katie-bar-the-door, raise-the-drawbridge-and-flood-the-moat signal for any self-respecting spam filter. Hence the increasingly bizarre variants of such words in spam subject lines: v-i-a-g-r-a, Ci@lis, L*V*TR* and so on.

"It's gotten so that an e-mail that just says 'Viagra' is extremely likely to be legitimate," says Lukas, whose duties include spam fighting at Milwaukee healthcare provider Aurora, which has about 35,000 employees.

> *"It's gotten so that an e-mail that just says 'Viagra' is extremely likely to be legitimate."*

The hassles of spam affect all industries and are well documented. According to the International Telecommunication Union, the annual cost of spam has topped $25 billion, with a preposterous 80% of all e-mail sent consisting of junk. In corporations, spam takes a toll on worker productivity, bandwidth and storage, and can harm a company brand and lead to lawsuits.

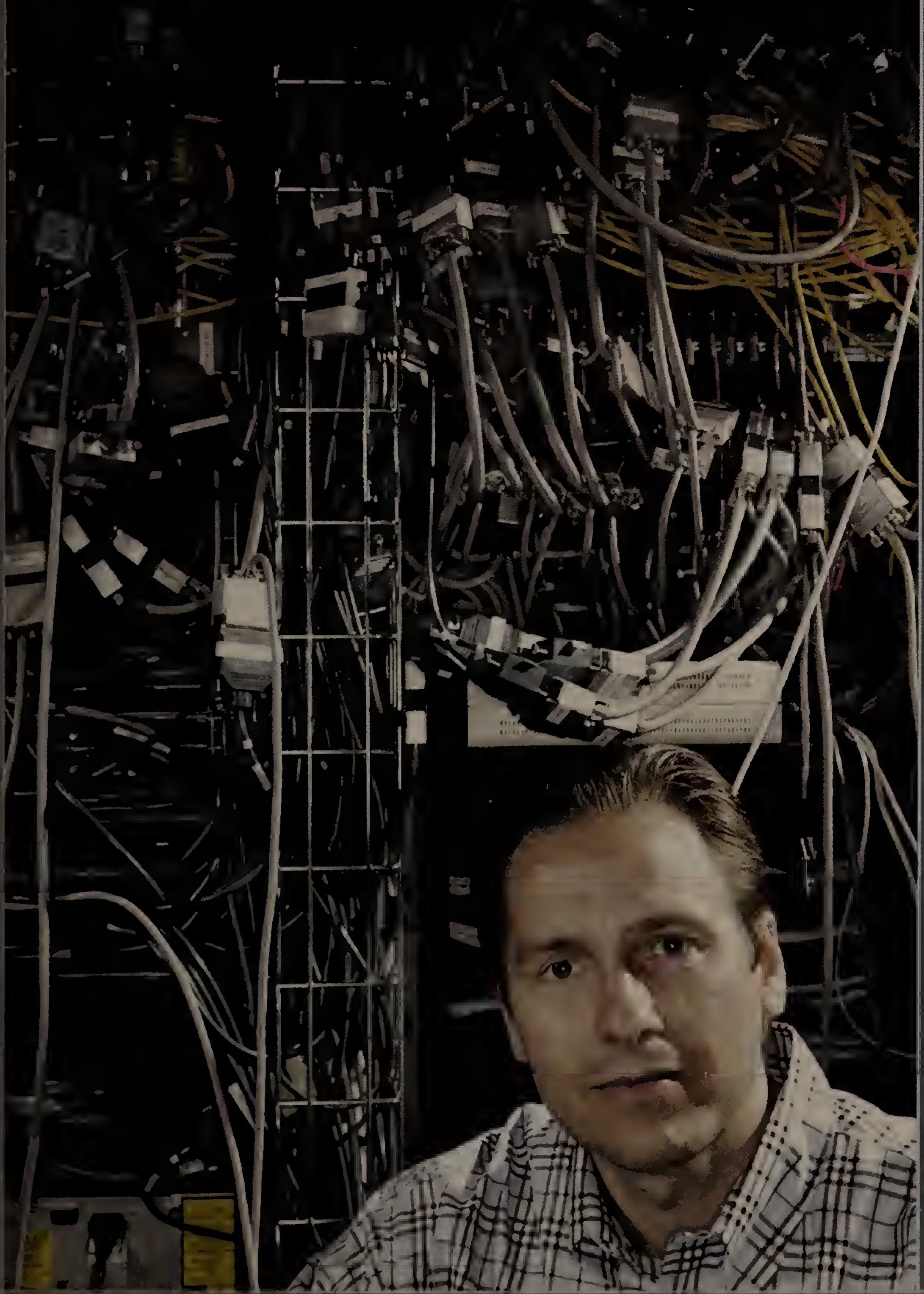
But for some businesses — those whose products, services or terminology have been hijacked by junk e-mailers — the problem is even more complex: IT needs to make sure employees send and receive legitimate information without being inundated by spam.

Companies involved directly or tangentially in industries such as healthcare, pharmaceuticals, financial services, credit reporting, entertainment and employment services all face extraordinary spam-filtering challenges.

They tend to use a baseline of industry-standard strategies, tactics and technologies, plus some extra special tricks — such as allowing "Viagra" subject lines through.

Layering it on thick

"Regardless of industry, you have to take a layered approach — you need to identify the information that's coming in, where it's coming from, what its content is and where it's going," says Stephen Singh, a vice president



TIM EVANS

Dan Lukas of Aurora Health Care uses gateway appliances to filter incoming and outgoing e-mail for spam, but he also lets end users do some of their own filtering.

and chief network architect at Fidelity Investments in Boston.

At Aurora Health Care, "We hit spam from a couple of different angles," Lukas says. The company uses four McAfee WebShield e500 gateway appliances — two each for incoming and outgoing mail. In addition to virus-scanning, the appliances use customizable Bayesian filtering algorithms, which Lukas says he's "dialed down to catch more stuff than the default," because of the company's spam-sensitive industry.

Aurora end users also get the opportunity to do some of their own spam filtering. The McAfee appliances attach a value to each message, and any e-mail that fails to meet a given threshold is deemed spam and dropped. However, borderline e-mails — those just below the threshold — can be marked as potential spam and placed in a separate folder in recipients' Lotus Notes e-mail. There users can decide whether to accept the messages.

According to Gartner analyst Betsy Burton, this user-tunable component is increasingly popular and important, especially in spam-sensitive companies. "We're seeing more multi-level approaches to spam filtering," Burton says. "That's important because while a lot of junk is what you might think of as 'classic spam,' some spam is in the eye of the beholder."

Fidelity's Singh says that while the financial-services firm does not yet offer individual spam filtering at the desktop, such a plan is "under consideration."

Users willing to accept extra junk

Overall, Aurora blocks 50,000 to 60,000 spam messages each day for its 35,000 employees. Lukas estimates the company receives 90,000 to 100,000 spams daily; he concedes that a big chunk of junk continues to reach end users but adds that in the healthcare industry, "A little bit of aggressiveness can bite you." Better to grin and bear a bit of extra junk to ensure that all legitimate e-mail comes through.

Top 10 bottom feeders

According to Commtouch Software, an anti-spam vendor, in the first half of 2004, the 10 most frequently mentioned products or services in spam were:

Drugs	29.5%
Mortgage/refinance	9.7%
Organ enlargement	7.1%
Shopping	6.9%
Software sales	6.1%
Financial	5.9%
Work from home/jobs	4.1%
Dating	3.2%
Pornography	3.1%
Weight loss	2.6%

Other notable entrants included beauty and health products (2.5%), debt "solutions" (2.5%), university degrees (2.4%) and vehicle warranties (1.9%).

While the major pharmaceutical companies declined to comment on how they deal with Viagra-type spam, experts say it's probably a mix of light and heavy filtering, depending on the user. Gartner's Burton points to educational institutions as another example. Because of the tradition of wide-open information flow in academia, she says, "Professors and students are going to want to receive all sorts of stuff that you probably don't want administrators to get."

Even without user-customizable filtering, businesses can accommodate individual users — until the company gets too big. Venture capital firm Ardesta that invests in firms specializing in nanotechnology and micro-electromechanical systems. Because words such as "investment" and "opportunity" are so prominent in its legitimate e-mail traffic, the Ann Arbor, Mich., company could face a spam nightmare, according to Jeffrey Rinvelt, IT director. "We really get hammered," he says. "You want to be accessible, but you don't want [e-mail] to become unusable."

Moreover, the 70 users Rinvelt supports have widely varying demands regarding spam. Those close to the front lines are loath to miss a single message and thus are willing to put up with a heavy load of junk mail.

Rinvelt uses Sunbelt Software's iHateSpam content filter because he says the product makes it easy for him to offer users their own filtering profiles. "Some users want to be aggressive, some more passive," he says. "I set them up on an individual basis." Naturally, in larger companies this becomes unworkable.

No DIY, please

For nearly all corporations, even small to midsize businesses, the spam problem has become too big for do-it-yourself solutions. Pacific Crest Securities, a boutique investment bank and brokerage firm in Portland, Ore., with offices in Boston and San Francisco, learned that lesson the hard way.

Until last year, "We tried to let people use [Microsoft] Outlook tools" to deal with junk e-mail on an individual basis, says Joe Williams, systems administrator. Each of Pacific Crest's 100 or so employees, primarily research analysts and investment bankers, "maintained their own spam list," he says.

The idea had curb appeal; the company had more than its share of tech-savvy power users, and in a spam-sensitive industry, it seemed wise to let individuals decide how to separate the wheat from the chaff. However, sometimes power users outsmart themselves. "People tried to fine-tune their filters" through custom whitelists and blacklists, Williams says. Trouble ensued. "All of a sudden, guys weren't getting mail," he says. "Every time we checked it out, it was [because of] a rule they'd added on their own."

Nearly a year ago, Pacific Crest realized it was time for IT to seize control of the anti-spam effort. The company opted for Brightmail's product, which immediately eliminated the problem of employees losing legitimate e-mail. (Symantec recently purchased Brightmail.) "For a while we quarantined everything and checked for false positives," Williams says, adding that Brightmail eliminated the problem.

For the most part, the tactics that help any company fight junk e-mail apply to all industries. However, IT managers in sensitive industries need to go that extra mile to come up with approaches that can accommodate the special needs of their end users.

Ulfelder is a technology and automotive writer in Southborough, Mass. He can be reached at sulfelder@charter.net.

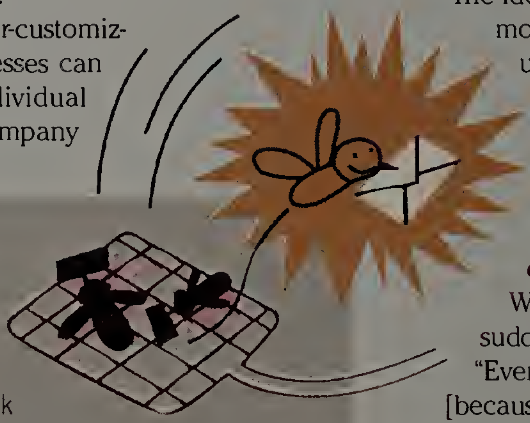


ILLUSTRATION BY MONIKA AICHELE

Waxing and waning

Any discussion of spam-sensitive industries needs to include ISPs. ISPs spend a fortune trying to reduce the quantities of junk mail sent to — and by — their subscribers. ISPs formed the Anti-Spam Technical Alliance expressly for that purpose. The alliance has taken measures such as targeting "zombie" PCs that are used to launch mass mailings without their owners' knowledge.

Despite efforts on the legislative and technical fronts, only the most optimistic ISPs hope for decisive victory over spammers in the foreseeable future. So they've learned to savor the temporary triumphs, short-lived though they might be.

Cable television provider and ISP Charter Communications recently earned one of these short-term breathers. Charter, of St. Louis, switched to an anti-spam approach that uses Symantec's Brightmail for content filtering and IronPort Systems software for network monitoring.

"These are our two new weapons," says Laurie Jill Wood, director of Internet security at Charter. In the first 24 hours of the Brightmail/IronPort use, the company blocked 31 million spams from customer mailboxes, according to Bob Bosco, director of Charter's mail and Web complex. (The company has 1.8 million subscribers.) Many customers immediately noticed and commented on the spam reduction, she adds.

"Charter understands that blocking spam is an ongoing effort. Hopefully, we can keep ahead of the game," Wood says.

— Steve Ulfelder

CLEAR CHOICE TEST

Security certificate management

CoreStreet scales digital certificates

■ BY RODNEY THAYER, NETWORK WORLD LAB ALLIANCE

What's the point of deploying a digital certificate infrastructure if you can't readily check the status of certificates? That's where CoreStreet's Real Time Credentials comes in.

In our test of this system — which uses the Online Certificate Status Protocol (OCSP) — we found that while its unique approach works as advertised, it might be overkill for most companies using a certificate infrastructure. The usefulness of this product will not be fully realized until more applications support OCSP.

CoreStreet provides certificate status services through a network of distributed OCSP responders, lightweight servers that do not contain sensitive cryptographic information and can be safely distributed throughout a company.

A central RTC Validation Authority (RTC VA) retrieves the Certificate Revocation List and a list of all issued certificates from the underlying certificate authority to generate proofs, or pre-built OCSP responses (see graphic, right). Then RTC Responders retrieve these proofs from the RTC VA using HTTP and to generate OCSP responses for queries from an OCSP requestor. Security applications that process certificates issue OCSP requests. The application then uses the OCSP response to determine the certificate's validity.

The RTC VA and each RTC Responder are managed separately through a Web-based GUI. There also is a command-line interface to the RTC VA, but we found it incomplete. Each component has its own error log that resides on the individual Validation Authority and Responder systems. There is no capability to integrate these internal log files with an external log management system.

To tap into RTC services, security devices must support Secure Sockets Layer (SSL), 802.1X, IPSec or some other certificate-aware protocol, and be configured to check the status of the certificate. Not many applications directly support OCSP yet. Several vendors, including CoreStreet, offer add-on products that enhance Internet Explorer, Internet Information Server and Windows to add status-checking based on OCSP. Mozilla natively supports OCSP, and future versions of Windows will as well.

We installed RTC VA and RTC Responder software on two Windows systems (see How we did it at www.nwfusion.com, DocFinder: 3225). The documentation provides only a partial installation guide. The default configuration uses some non-standard ports, so you have to reconfigure it to integrate with most certificate authorities. CoreStreet's implementation of OCSP makes assumptions about how your certificate authority works and about how the OCSP requestor works. It expects serial numbers to be sequential, which the standard doesn't require. It also expects the OCSP implementation to not use the "nonce" feature — an identifying value included in OCSP requests and response protocol designed to prevent replay attacks. Not using nonce violates the standard.

RTC VA Web management interface is not configured to support SSL connections by default, and changing the settings to support SSL is not documented. The default configuration for the RTC Responder uses SSL, but it uses a self-signed certificate and assumes you have a management workstation that uses a browser configured with client certificates.

The RTC VA interface uses a role-based administrative model. The installation procedure required changing roles frequently, from Administrator (to perform database updates) to Officer (for managing certificates) to Auditor (for checking certificate authority status).

We set up a scenario where the status of the Web server's certificate could be checked. The certificate issued by our OpenSSL certificate authority to the Web server contained the URL of the RTC Responder. The browser used the URL from the certificate to send an OCSP request for certificate status to the Responder.

Our choice of an underpowered platform for the responder proved that the vendor's claims that the RTC Responders are not resource-intensive are true. Both the normal case of a valid certificate and the case where we attempted to use a revoked certificate worked as expected.

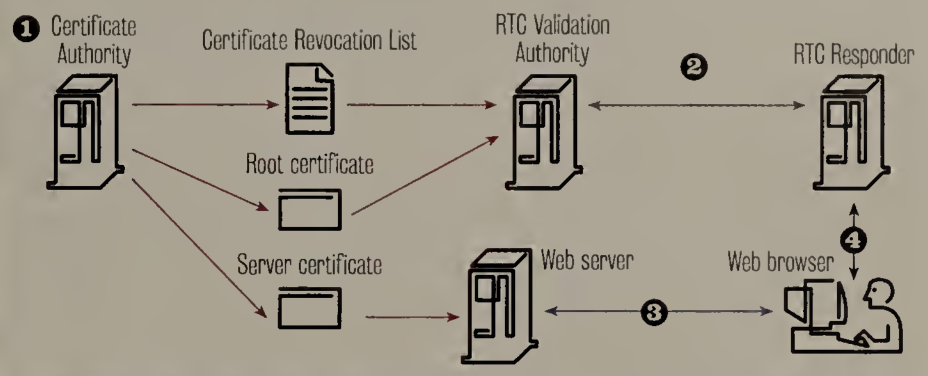
Certificate status is updated automatically on a periodic basis. To force immediate change propagation, you have to manually intervene on each component to perform an update. Updating the RTC Validation Authority for a 10,000 certificate Lightweight Directory Access Protocol database took 8 to 9 minutes on our test server.

The vendor says its Validation Authority/Responder configuration solves the problem of poor performance when calculating OCSP responses. In our example with 10,000 certificates, it took 11 seconds for its software to generate all possible responses.

OCSP has not been widely supported in the past, but it now is being built into most commercial and open source certificate authorities. (See more on OCSP at DocFinder: 3226.) While the CoreStreet RTC system provides a scalable alternate to these built-in OCSP capabilities, it's really only a necessary addition to your network if you need to manage a huge number of certificates.

Thayer is an independent security consultant. He can be reached at rodney@canola-jones.com.

The Real Time Credentials process



❶ Certificate Authority issues a server certificate and publishes a root certificate and Certificate Revocation List. The certificate is installed on the Web server.

❷ RTC VA uses certification information to generate proofs. Proof is then retrieved by RTC responder.

❸ Client browser initiates SSL connection to the Web server and receives the proper certificate.

❹ The OCSP requester running inside the browser checks the status of the certificate against the "proof" stored on the RTC responder.

Net Results

Real Time Credentials Authority and Responder

OVERALL RATING 3.4

Company: CoreStreet, www.corestreet.com **Cost:** Pilot installation of 500 users with 1,500 certificates costs $20,000. **Pros:** Provides distributed OCSP services; scales to very large certificate hierarchies; isolates sensitive cryptographic components. **Cons:** Difficult to operate if unscheduled updates are needed; adds complexity if existing Certificate Authority supports OCSP; requires additional client-side software in many cases.

The breakdown

Security features 30%	4
Management/ease of use 30%	3
Documentation 20%	3
Installation 10%	4
Standards compliance 10%	3
TOTAL SCORE	3.4

Scoring Key: 5: Exceptional; 4: Very good; 3: Average; 2: Below average; 1: Consistently subpar

NW Lab Alliance

Thayer also is a member of the Network World Lab Alliance, a cooperative of the premier testers in the network industry, each bringing to bear years of practical experience on every test. For more Lab Alliance information, including what it takes to become a partner, go to www.nwfusion.com/alliance.

Norwich Success Story #68

MARK STARRY, MSIA '04, CISSP

I've spent the past seventeen years absorbed in IT. In early 2001, with the advent of HIPAA, Information Security became one of my top priorities. For several years my concerns that our organization lacked a structured information security program fell on deaf ears. I just couldn't make the case.

Shortly after beginning the Norwich MSIA program, I drew the attention of my CIO with my first "workplace project paper". Everything we did in the MSIA revolved around our workplace, our own environment, and our own problems. After reviewing my recommendations, the CIO instructed me to create an information assurance steering committee and an information security roadmap.

The success of the steering committee and subsequent MSIA work was instant ROI for my company...and me. By mid 2003 with the knowledge gained from the MSIA program, I breezed through the CISSP certification process and I was soon involved in all decisions relating to information security technology and policy within my organization. In April of 2004, I was officially recognized with an Information Security Manager title and a significant pay raise. I am very proud to be a part of Norwich.

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IT contract management

Manufacturer's homegrown system tracks thousands of telecom and product agreements.

BY DENISE PAPPALARDO

Sorting through dozens of binders at multiple locations to find one of Flowserve's 1,785 IT contracts was not an optimal way to access the company's latest desktop software, hardware, leasing and telecom agreements. But that's the process Flowserve relied on when the manufacturer of pumps, valves and seals grew from a $900 million company to a $2.4 billion company in just three years. A simple Excel spreadsheet acted as a table of contents for more than 30 binders that held copies of the company's contracts around the globe.

"With the expansion we often found ourselves scrambling for information whenever IT contracts were due, needed renewal, or needed to be consolidated or put in place," says Pieter Schoehuijs, IT director for Flowserve's Flow Solutions Division in Irving, Texas.

About 18 months ago, a Flowserve programmer created an IT contract management tool based on Lotus Notes in a single day. "We documented our basic requirements, such as fields and functionality in a two-page design," Schoehuijs says. The fields included information such as contract value; the name of the agreement; owner; contract length and dates; and supporting documents such as a PDF file of the contract and supporting attachments such as an Excel spreadsheet or Word document.

In February 2003, IT folks input basic contract information from the old Excel spreadsheet to the Notes application, along with electronic copies of many of the contracts. The database initially included about 300 contracts from the Dallas office, but after making some tweaks to the application, the tool quickly was made available to Flowserve's 40 IT managers.

IT employees are responsible for entering into the system the contracts they oversee. "They really embraced using this tool because it has value," Schoehuijs says. The system now holds 1,785 contracts from 373 vendors, and 1,107 of those contracts are active.

The system immediately paid off. "In the U.S. it only took one phone call to a local phone supplier of some of our locations to get a 15% discount [after] recognizing our total size rather than doing the best we can per location," he says. Flowserve had five separate contracts with the carrier, which Schoehuijs prefers not to name.

Having contract data at their fingertips gives Flowserve's IT managers leverage when negotiating new contracts. For example, if a contract owner sits down with IBM to renew a disaster-recovery contract, that owner wants to be aware of all the 55 contracts Flowserve has with IBM.

And because Flowserve is an international organization, being able to access contract information from the company's overseas offices is an important negotiating tool.

Month-to-month hardware lease contracts also came to light after the system was up and running. "If a three-year lease contract for hardware lapses and goes to a month-to-month contract, you pay a premium," Schoehuijs says, noting that a month-to-month contract costs 15% to 20% more than a multi-year deal.

The system sends an e-mail notification to a contract owner 100 days before a contract's expiration date, 35 days before and finally on the expiration day.

Flowserve's IT group now manages its portfolio of IT contracts proactively by managing its suppliers rather than having the suppliers manage the manufacturer, Schoehuijs says. "No more automatic renewals unless we choose to do so."

Improved risk management is another benefit of the system, which gives Schoehuijs and his team a better handle on who is managing which contracts. Among Flowserve's IT staff there are 87 contract owners responsible for following up with vendors.

"The value of the application is obvious for us. We know we are quicker in recognizing end-of-contract situations, and we're doing a better job of leveraging contract negotiations," Schoehuijs says.

Market contraction

Contract management can be a stand-alone function or it can be integrated with ERP or CRM applications. In Flowserve's case, it is a stand-alone application, but Schoehuijs says he can see a time when it is integrated with other applications to further extend benefits.

While Flowserve built its own tool, off-the-shelf contract management applications provide the same function for all types of contracts in a company, not just IT. Vendors include a mix of well-known companies such as Ariba, Oracle and SAP, and lesser-known firms such as Deltek, I-many and Neoforma. On average, a midsize contract management installation and service package could cost between $40,000 and $80,000, according to IDC.

Last year corporate users spent about $496 million on contract management applications, says Scott Tiaztun, a program manager at IDC. The research firm forecasts spending on contract management applications to jump to $720 million by 2007.

Although growing in popularity, the use of contract management applications is far from commonplace. In a recent IDC survey of 500 IT executives, 21.1% already implemented contract management and 11% planned to do so this year. But 28.4% have no plans to implement contract management software, and another 23% aren't sure. For some users, the benefits are just not compelling enough to push it onto their IT budget in the near future.

As Flowserve has experienced, however, IT doesn't have to spend much to see benefits. Flowserve used its existing Lotus Notes platform and Dominos server. And because the database is not large Schoehuijs didn't have to deploy a new server. "A negligible investment will go a long way and pay off immediately," he says. ■

JIM OLVERA

> **"The value of the application is obvious for us. We know we are quicker in recognizing end-of-contract situations, and we're doing a better job of leveraging contract negotiations."**
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> **Pieter Schoehuijs**
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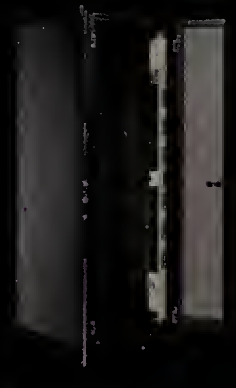

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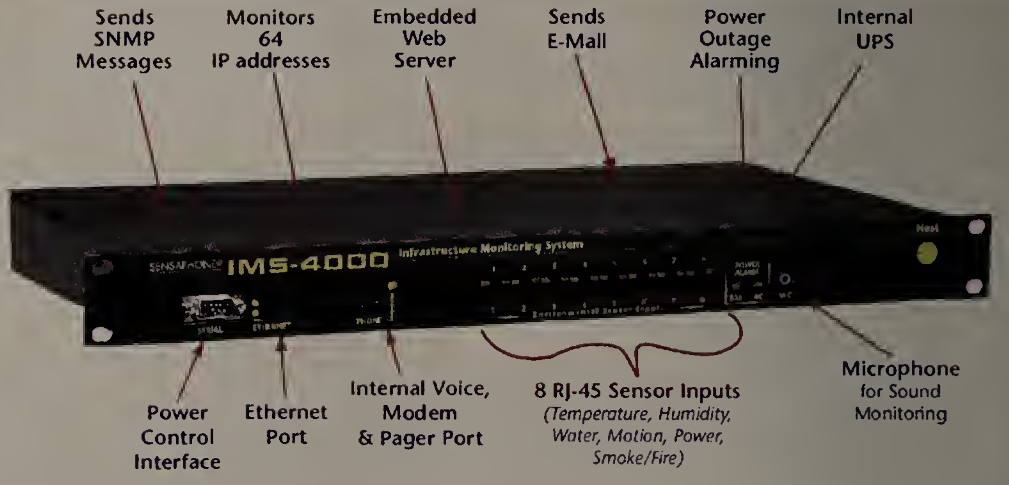
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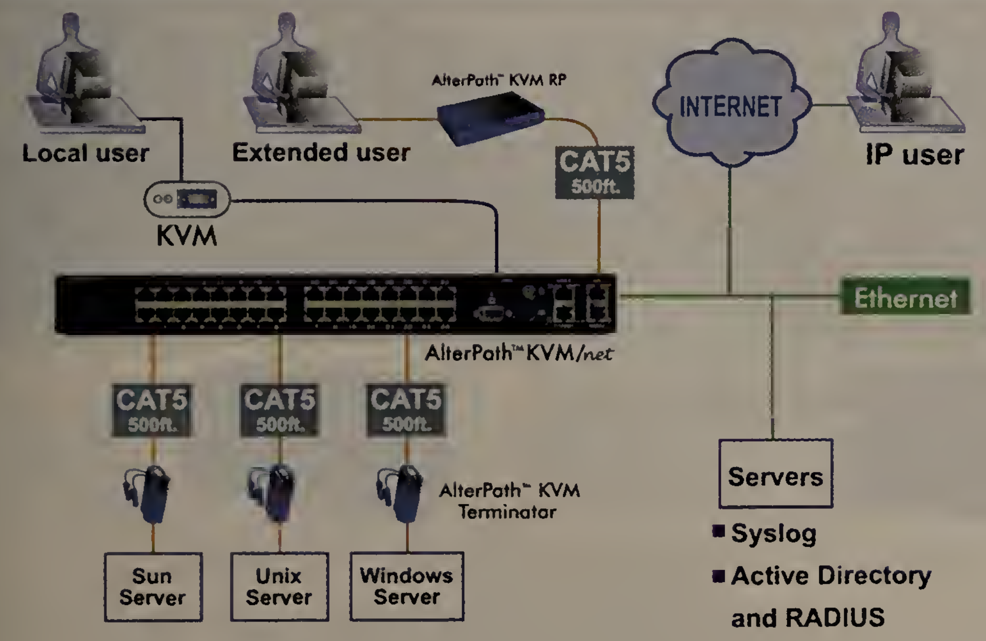

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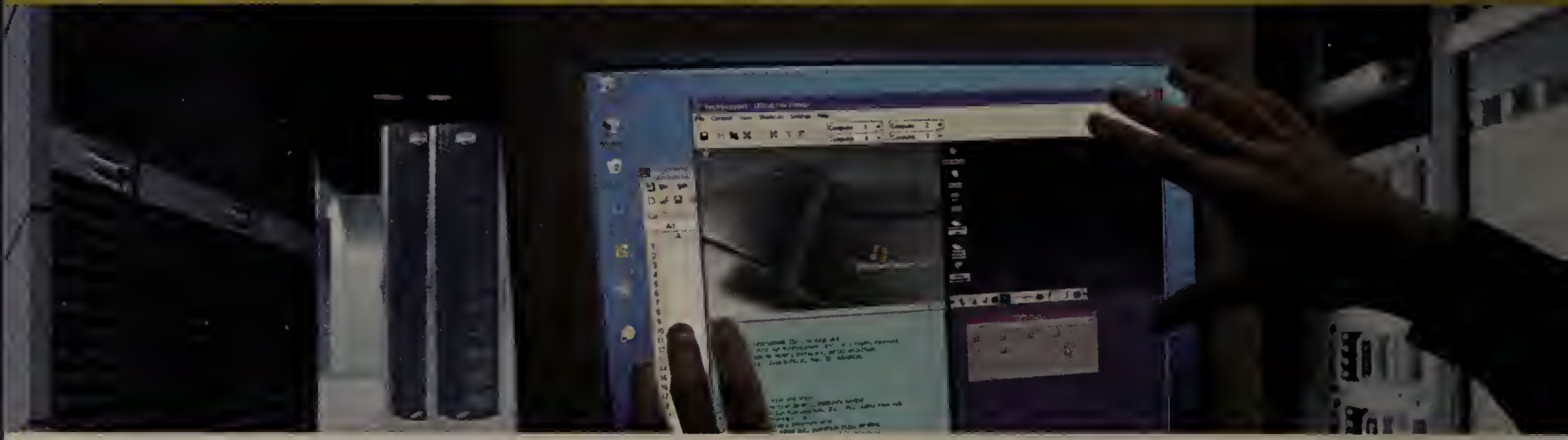

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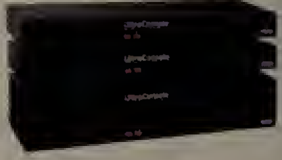

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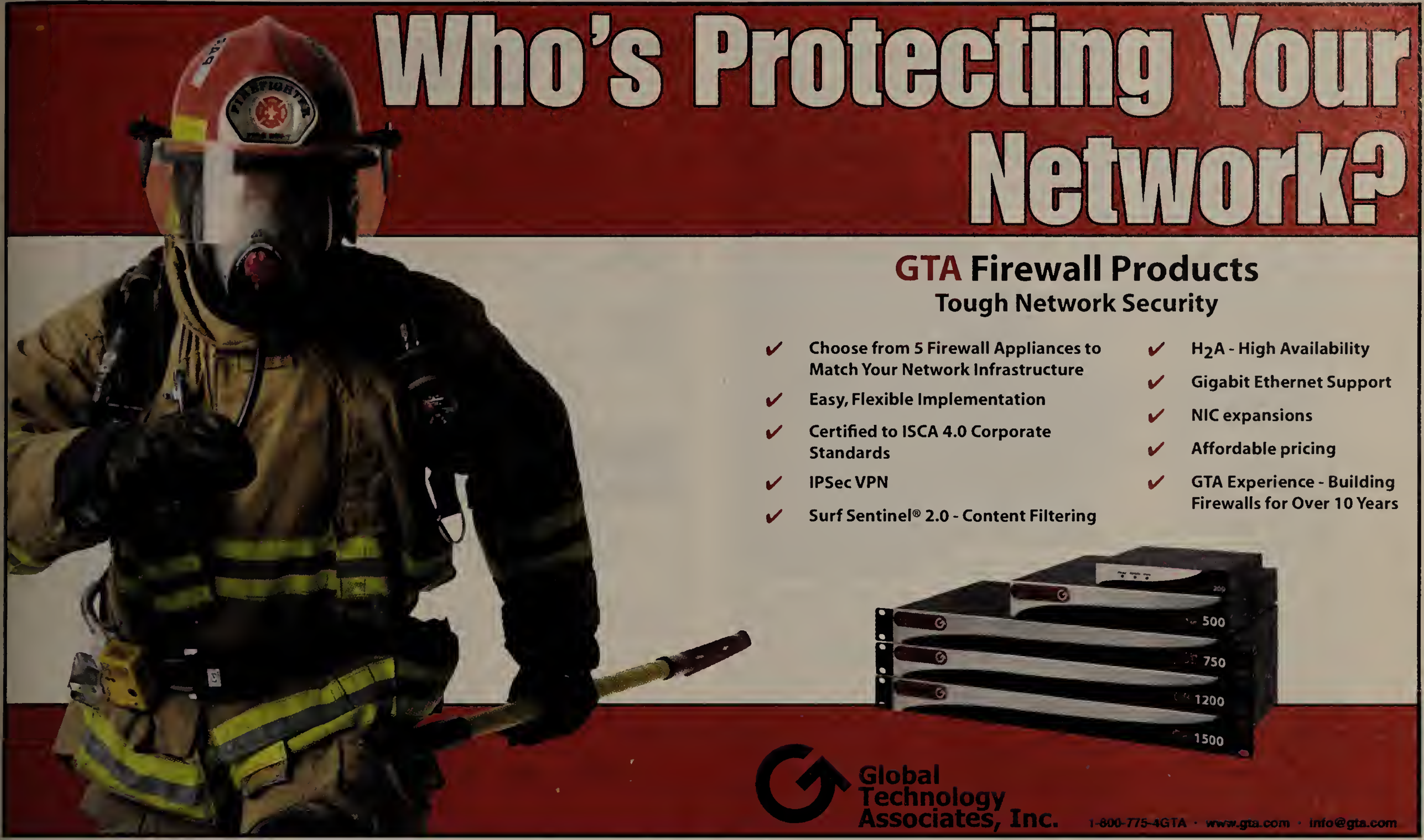
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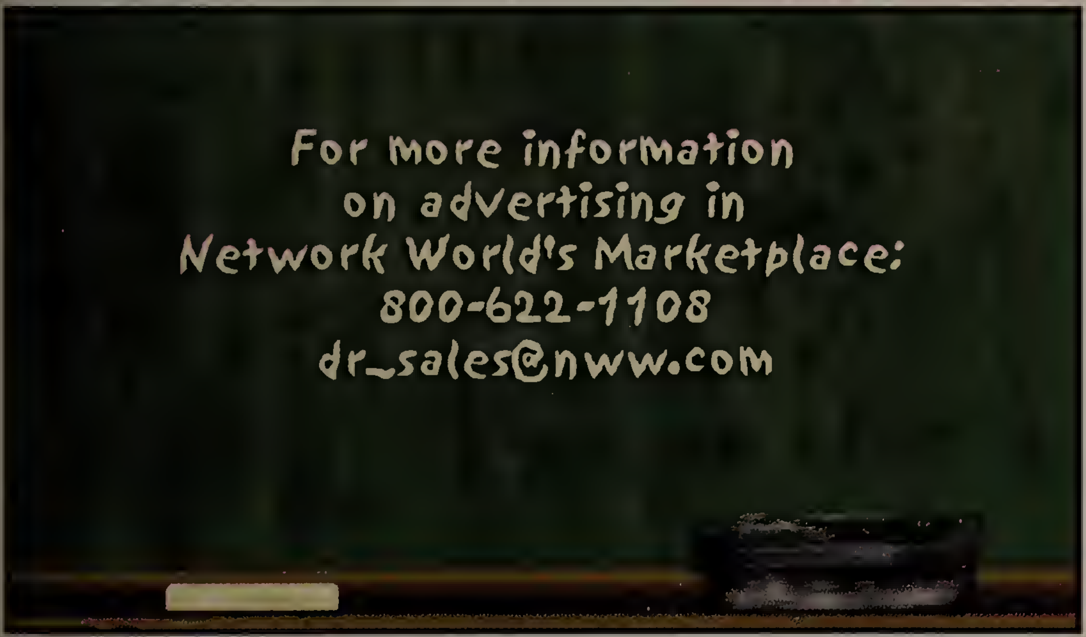
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Seeking qual. candidates possessing MS or equiv. and/or rel. work exp. Part of the req. rel. work exp. must include 3 yrs working w/Oracle Technologies. Duties include: Support & interface w/Oracle applications e-business suite components HR, PAY, OAB, OTL, OIC, AP, AR, GL, INV, PO & OM. Work w/Oracle, PL/SQL, Developer, Discoverer, & Workflow Builder. Send resume, references & salary requirements to: Exxor Inc., 8374 Market St., #161, Bradenton, FL 34202.

Computer Touch, LLC, is looking for a Programmer Analyst to develop and test Java features, administer Unix Accounts, create client websites for e-commerce and integrate and test GUI interface, and develop node to node routing protocols for wireless networks. Please send all resumes to Computer Touch, LLC, 9 Belgravia Terrace, Farmington, CT 06032, Atten: Human Resources Dept.

Convergence Network Specialist, Hauppauge, NY. Install and maintain Voice over IP phone systems. 2 yrs in job exp. req'd. Resume only to bg@ctnetworks.net or CT Networks, 125 Wireless Blvd., Hauppauge Technology Center, Hauppauge, NY 11788, Attn: Barry Goldstein.

Softline Systems, Inc is seeking qualified individuals to work at client sites throughout the United States. We have openings for the following positions:

Oracle Programmer Analyst to develop various applications, user interface and database programs using Oracle, PL/SQL and SQL.

Data Warehouse Programmer Analyst to develop data warehouse and data marts using Business Objects, Oracle and PL/SQL.

Ab-Initio Programmer Analyst to develop data warehouse and data marts using Ab-Initio, Oracle, SQL and PL/SQL.

Teradata Developer to develop Teradata databases.

Apply to: Softline Systems, Inc, 1600 Boston Providence Highway, Walpole, MA 02081.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Business Application Analyst. Act as liaison between technical developers and users/customers. Requirements: Bachelor's degree or equivalent* in computer science, math, statistics, business or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with SQL, CGI environment and J2EE environment also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Marc Blackburn, FedEx Corporate Services, 4200 Regent Blvd., Irving, TX 75063. EOE M/F/D/V.

SW Engineer - As member of the s/ware development team, design & develop network management s/ware. Participate in design & code reviews. Maintain existing s/ware systems. Test & integrate cutting-edge telecom products. Must have BS in Computer Engineering, Comp Sci, EE or equiv,+ 2 yrs exp in job offered or 2 yrs exp in telecom s/ware development, "C" coding. Must have exp w/Lynx & LINUX, GDB, SmartBits & ATM Modules. 40 hrs/wk. Salary: $93,000. Send 2 copies of resume to: Case#200300204, Division of Career Services, Labor Certification Unit, 19 Staniford St., 1st FL, Boston, MA 02114.

Software Developer III. B.S. in Comp. Sci. or rel. field + 3 yrs complex programming exp. w/ASP, VB, & MS Access. Exp. w/HTML, JavaScript, & structured analysis & dsgn methodologies. Ability to write complex SQL querries. Demonstrated knowl of relational d/bases & object oriented methodologies. Resumes to Erica Petersen, 4800 Westown Pkwy, #300, West Des Moines, IA 50266.

PROGRAMMER ANALYSTS for Overland Park, KS office. Develop & maintain software applications using Orbix, J2EE, MKS, TEMIP, Interwoven, Coolgen, Metrica, Netrac, Tuxedo, Tango, Eclipse, CORBA, RMI, RUP. Bachelors Degree reqrd in Computers, Engineering or related field + 2yrs of related exp. 40 hrs/wk; Must have legal authority to work permanently in the U.S. Send resume to HR Manager, Spectrum Informatics Inc, 11936 W 119th St., #141, Overland Park, KS 66213.

SW Engineer - Design, code & test features for cutting edge telecomm products. Modify product features to ensure conformance to ANSI specs. Analyze & fix bugs in system as they arise at various customer sites. Must have Bach. in Computer Science/Engineering, Electrical/Electronics Engineering, + 2 yrs exp in job offered or 2 yrs telecom s/ware development exp. Must have exp in telecomm &/or data networking industry, includ'g exp w/SS7 technology. In-depth knowledge of one or more telecom protocols required. 40 hrs/wk. Salary: $80,000/yr. Send 2 copies of resume to: Case# 200300200, Division of Career Services, Labor Certification Unit, 19 Staniford St., 1st FL, Boston, MA 02114.

SOFTWARE ENGINEERS (12 positions): require Bachelor's or equivalent in Engineering/Computer Science/Mathematics/Science or closely related field with two years experience providing skills in described duties, at $79,000 per year. Provide on-site consulting in design, analysis and development of software for legacy systems in IBM mainframe environment; development and administration in Oracle, DB2, SQL Server and Sybase; e-commerce and web systems development in Microsoft, Java and related technologies; network management systems development with Netscape Server and related tools; SAP R/3 application systems on Windows with DOS and ABAP/4 and related modules. 40% travel to client sites in the United States. Mail resumes to: YASH Technologies, Inc., 605 17th Avenue, Suite 1, East Moline, IL 61244.

Computers - Database Administrators needed. Seeking qual. candidates possessing BS or equiv. and/or relevant work exp. Duties include: Administer & support database development & production environment; Work with Informix, Sun Solaris, AIX, HP-UX, DB2 UDB & Veritas. Mail resume & ref. to: Object Solutions, Inc., Attn: HR, 3025 Harbor Lane, Plymouth, MN 55447-5119.

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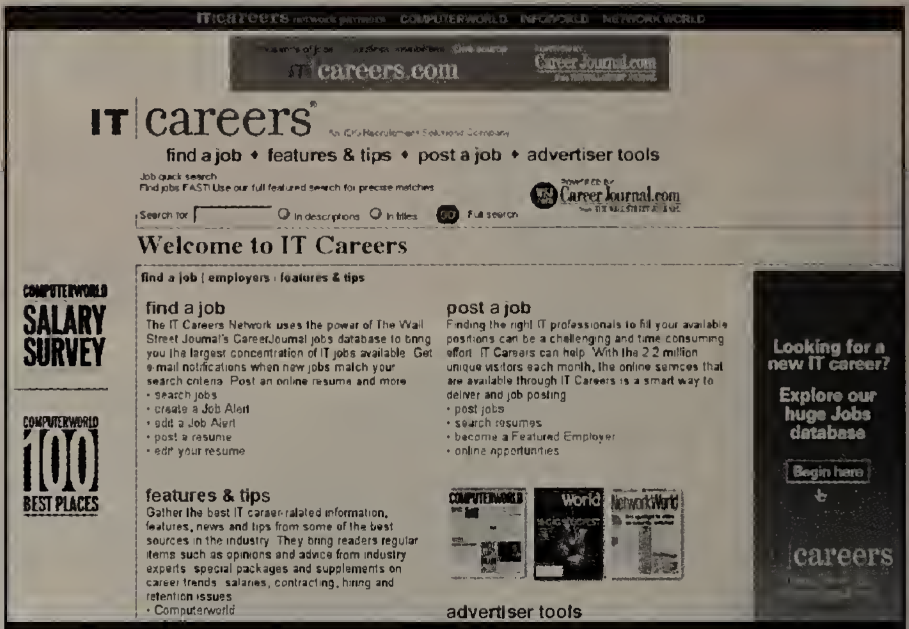
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Senior Developer (NYC) Define scope of overall rational database modeling projects. Develop & implement project strategy & architecture, production schedules, projections & budget for assigned tasks and roles. Oversee installation, configuring & tuning of SQL Server 6.5, 7.0 & 2000 databases, servers & Oracle. Analyze & evaluate existing & proposed systems. Develop computer programs/systems & related procedures to process data. Provide comprehensive analysis for clients, prepare program specifications, diagrams, develop coding logic flowcharts, & test to ensure proper system performance. Prepare detailed progress reports for management & schedule projects for deliverable reviews & Quality Assurance tasks. BS/MS in Comp Sci, or any Engg or related field and relevant experience required. Send resume to Devon Archer, President, Sitaro Group, 48 Wall St., #1100, NY, NY 10005.

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SW Engineer - As member of s/ware development team, design & develop call control s/ware. Analyze s/ware requirements & functional specs. Design, code & test critical Call Control functionality includ'g: translations, CLASS 5/4 Services, AIN basic Call Model, messaging & associated protocols. Participate in design & code reviews. Maintain existing s/ware systems. Test & integrate telecom products. Must have BS in Computer Engineering, Comp Sci, EE or equiv, + 2 yrs exp in job offered or 2 yrs telecom s/ware development exp. Must have knowledge of internet protocols & the following telecom tools: CVS, GNU, LYNX, UNIX, INET & HAMMER, as well as strong coding skills in C. 40hrs/wk. Salary: $75,000/yr. Send 2 copies of resume to: Case# 200300199, Division of Career Services, Labor Certification Unit, 19 Staniford St., 1st FL, Boston, MA 02114.

SRCT Inc. is seeking a Software Engineer experienced on AS400, DB2, COBOL, RPG. Please respond to Mr. Faiz, 3213 Ridgecane Rd, Lexington, KY 40513.

SW Engineer (Technical Services) - Ensure integrity of design, development, implementation, & testing of communication s/ware for company's cutting edge telecom products. Resolve complex problems caused by anomalies in one or more of telecom s/ware or network sub-systems. Reproduce problems in lab to isolate s/ware problems to affected module(s). Develop interim solutions to problems encountered in the field. Assess ways to enhance product reliability & serviceability. Recommend applicable process improvements to enhance service delivery/offerings. Work closely w/Sustaining Engineering to obtain root cause analysis of reported anomalies. Must have BS in Computer Engineering, Comp Sci, EE or equiv,+ 2 yrs exp in job offered or 2 yrs exp recreating, diagnosing & solving complex problems in telecom or data networks. In-depth knowledge of one or more telecom protocols (i.e. SS7, TCP/IP, etc.); scripting languages (i.e. TCL/Expect, UNIX shell programming, or PERL, as well as C or C++) & telecom testing tools & equipment. 40hrs /wk. Salary: $82,000. Send 2 copies of resume to: Case# 200300203, Division of Career Services, Labor Certification Unit, 19 Staniford St., 1st FL, Boston, MA 02114.

Software Analyst/ Business Development Manager: Duties include gathering requirements, doing business analysis and proposing solutions for IT needs of healthcare and pharmaceutical industry. Will build and lead team to develop and customize software dealing with clinical trials for the pharmaceutical industry. Requirements Bachelor of Science degree in Science or Technology Field or equivalent and 1 year coursework in medicine or pharmacology required. Must have 3 yrs. exp. software analyst/business development manager or 3 yrs. exp. in marketing and/or research in the IT field. Since TechNation has clients located in several states and since assignments are of temporary nature, candidates must be willing to move from location to location for assignment duration that varies from 3 mos. to year. Email CV to rtroff@tnscinc.com, Rona Troff, HR Mgr of TechNation Software Consulting, Inc., or mail to 300 N. Dakota Avenue, #505B, Sioux Falls, SD 57104.

Database Administrator needed. Responsible for providing technical leadership for organization's Oracle database environment. Must have B.Sc. in computer engineering and 1 yr. experience. Mail resume to Gerrie Teddy @ ITS, 2500 City West Blvd., Ste. 2400, Houston, TX 77042 or email to: gteddy@itsinc.com

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Simplex Info Systems

Senior System Analysts: Analyze, design, develop, test, implement, maintain and support application software using COBOL, PL/1, MQ Series, IMS DB/DC, J2EE, SAS. Requires Bachelors in Computer Science/Engineering or Related and 2 years experience.

Send resume to: HR Manager, Simplex Info Systems, Inc. 76 Northeastern Blvd., Suite 32C Nashua, NH 03062, or email to: resumes@simplexinfo.com.

IT Network Engineer - Assist in analyzing local & wide area net systems. Plan/design LAN, MAN, & WAN networks utilizing Shared/Switched Ethernet, Gigabit Ethernet, FDDI, & Token Ring, in addition to: TCP/IP, IPX/SPX, SNMP, DHCP, AppleTalk, X.25, ATM, & Frame Relay, RIP, OSPF, IGRP, EIGRP, BGP, ISL, 802.1q, VTP, & STP. Assist in resolving interoperability problems to obtain operations across all platforms including e-mail, file transfer, multimedia, & teleconferencing. Provide support to tech network systems using above protocols, Network Analyzer, channel coding & transmission theory, number systems, codes, digital electronic signals & switches, Boolean algebra & reduction techs, arithmetic operation & circuits, code converters, multiplexers, & demultiplexers. Select op systems, protocol sts & configuring comm media using bridges, routers, gateways, transport media, TCP/IP, IPX/SPX, & SNA. Provide network modeling & simulation assistance to deliver client/server app functionality. BS Comp Sci, Eng or related & working/theoretical knowledge of LAN, MAN, WAN networks, Shared/Switched Ethernet, Gigabit Ethernet, FDDI, Token Ring topologies, TCP/IP, IPX/SPX, SNMP, DHCP, AppleTalk, X.25, ATM, &Frame Relay, RIP, OSPF, IGRP, EIGRP, BGP, ISL, 802.1q, VTP, STP protocols, Network Analyzer, channel coding, knowledge of digital electronic signals/switches, Boolean algebra & reduction techniques, arithmetic operation & circuits, code converters, multiplexers, demultiplexers, Bridges, routers, gateways, transport, media & SNA. $65,300/yr. M-F. 40 hrs/wk. Denver, CO. Must have proof of legal authority to work permanently in U.S. Application by resume only to Workforce Development Programs, PO Box 46547, Denver, CO 80202. Ref Job#CO5086185.

An environmental engineering consulting firm with emphasis on mine remediation & restoration is seeking a GIS Database Administrator. Resp. inc. devlp'g integrated d-bases for tracking remedial actions at historic sites such as the Bunker Hill Superfund Site, work with in-house & EPA Scientists, Civil Engineers & proj. mgrs. to des. d-bases & secure online interfaces to retrieve site info. such as ownership, soil-water-dust samples, analytical results & other remedial properties. Collect user reqs, design, implement, manage & maintain integrity of Environmental & Geog. Info. Sys. (GIS) d-bases for mine remediation & restoration projects. Use computer technology & tools such as MS-SQL server, T-SQL, ASP communications, Java & VB scripts, SAS statistical tech., ArcGIS, EquIS & Win. Server 2000. Reqs. are Bach. in Mining Enginr'g or Comp. Sc. & 2 yrs. rel. exp. incl. mining reclamation & remediation d-base devlpmt. U.S. evaluated equiv. Bach. of Technology in Mining Engineer'g with noted exp. is acceptable. M.S. & 1 yr. exp. is acceptable in lieu of Bach. & 2 yrs. exp. Send resume to HR Mgr., Terra Graphics Environmental Engineering, Inc., 121 S. Jackson St., Moscow, Idaho 83843.

McData Corp. seeks applicants for the position of Sr. Software Engineer in Sunnyvale, CA to design and develop Fibre Channel switch protocols and fabric services. Requirements include bachelor's in computer science and 3 yrs exp as a software engineer in a Windows 2000 and NT environment, including one year using Fibre Channel switch protocols. Requirements also include working knowledge of Fibre Channel analyzers and third party HBAs and their management utitities. Respond by resume to Kari Hill, McData, 380 Interlocken Crescent, Broomfield, CO 80021.

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Computer Programmer; 40 hrs./wk. 7:30am-4:30pm M-F. $54,000/yr. Develop and enhance computer programs and decision support systems for employee benefit plans using third generation structured programming languages & Windows based technologies; website development both dynamic database driven & static page websites including designing, testing, and implementing of same; add new options to existing programs; document large projects defining new programs, enhancements, database structure, database administration and system flow using MS Word and Vision; confer with clients and coworkers to define new programs and modifications; communicate with clients regarding changes made to programs and facilitate training required to use new or modified programs; stay current on new technology items by reading, attending seminars & continuing education. Ed. Req. Bach. or Ed. Eq. in Computer Science, MIS, Commerce, Business Administration & 2 yrs. exp. as Software Systems Analyst, Systems Engineer, Software Consultant or comb. Work exp. must include 2 yrs. With Visual Basic 6, Structured Query Language, Transact SQL for Microsoft SQL Server 7, ASP coding, n-tier application development, Data Modeling, Visual Studio, Database Design & Administration, HTML, DHTML Javascripts, VBscript, Crystal Reports, Access, ADP, COM, Visual C++, Frontpage, Flash, Adobe Photoshop, packaging and deployment components of Visual Studio. Send resumes to Michigan Department of Career Development, P.O. Box11170, Detroit, MI 48202-1170. Incl. ref. #222603 & social security # w/ Resume. Employer Paid Ad.

SOFTWARE ENGINEER to provide on-site consultancy to design and develop embedded systems software in real-time systems using VxWorks operating system, socket programming, TCP/IP network protocols on UNIX platform. Require: Bachelor's in Computer Science/Engineering and four years experience in the job offered or any experience providing skills in the described job duties. 40% travel to client sites within the United States required. Salary: $68,000 per year, 40-hours/week, 8:30 am to 5:30 pm. Apply with resume to: Human Resource Manager, 4C Solutions, Inc., 1201 7th Street, East Moline, IL 61244

Senior Consultant

(Glen Mills, PA and other locations throughout the United States). Manage a team of client and consulting resources for the life cycle of SAP implementation projects, with a particular focus on companies in the manufacturing industry. Perform all required SAP (IM/WM/SAP Console) configuration and testing. Prepare functional specifications, unit and integration testing scenarios. Design, configure, implement, and test transactions for Inventory, Warehouse Management and Shipping. Create queries, identify and analyze master data and inventory load errors and rectify problems. Provide on-site implementation and Go-Live support for the clients. Utilize SAP interfaces including ALE, IDocs, and Remote Functions Calls (RFC), and Barcoding Technology. Assist in developing business cases.

The wage offered is $105,368/year. The work schedule is Monday-Friday 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree in Computer Science, Math, Business Administration, Information Systems, or Engineering (any) + 5 years experience in the job offered or 5 years experience as a Consultant, Systems Analyst or Project Team Member. Related experience must include SAP Console configuration, SAP RFC (Remote Function Cells), Barcoding Technology, SAP ALE configuration, SAP IDoc Configuration, SAP Inventory Management, and Warehouse Management configuration.

Please send your resume, referencing Job Order Number **WEB439858** to the: PA CareerLink, FLC Unit,235 W Chelten Ave., Philadelphia. PA 19144. EOE.

Software Engineer (New York, NY) wanted for design and development of multi-tier enterprise and web based systems. Must have Bachelor's degree in Computer Science or Electrical Engineering and 5 years experience. Must be authorized to work in the U.S. Send resume to Meg Lyons, TradingScreen, Inc., 5 Union Square West, 4th Floor, New York, NY 10003.

RedPrairie Corporation, world leader in provision of logistics execution systems, seeks the following: **Managers** (Technical) for supply chain execution application services at Cary, NC, office, to assist in leading in technical aspects of customer implementation & to mentor/provide administrative lead for group of Software Engineers. Require Bachelor's in Computer Science, MIS, Engineering or related field (equivalent combination education/experience or equivalent experience considered) plus 3 yrs experience in computer-related occupation, including leadership role in project implementing warehouse management or supply chain software, & experience in automated warehouse/distribution systems industry. **Senior Manager** for supply chain execution application services at Cary, NC, office, with responsibility for major portion of customer TMS products, to interface with internal groups to enable delivery of products that meet customer's need, & to serve as primary point of contact for customers. Require Bachelor's Computer Science, MIS, Engineering or related field (equivalent combination education/experience or equivalent experience considered) plus 5 yrs experience in computer-related occupation, including experience in logistics & supply chain consulting or related field, TMS functionality, & management of logistics projects. Interested candidates should e-mail, fax or mail a resume and cover letter, including code CW1 with salary requirements to:

RedPrairie Corporation
Attn: Organizational Development
20700 Swenson Drive
Waukesha, WI 53186
Fax: 262-317-2638
Email: Recruiter@redprairie.com

Computer Programmer: Develop/maintain customer databases using MIS; retrieve & analyze data using Unix &/or DOS-based PMS v9.6f/g; develop, modify & maintain accounting & budgeting systems; system & network administration of MS Windows based computers. Req 4 yrs work exp in job offered. Send resume to BKN and S Partnership, 2920 Clairmont Rd., Atlanta, GA 30329

IT PROFESSIONALS
Senior Consultant

(Glen Mills, PA and other locations throughout the United States). Responsible for designing applications in the Telecommunications industry including implementation and testing of Siebel and WebMethods. Gather requirements, design and build modules in Siebel and build functionality for the data integration from Siebel to back-end applications utilizing Workflow Processes, Workflow Policies and Business Services. Responsible for gathering requirements and design for data integration in Web Methods between various front-end applications and back-end applications utilizing High Level event flow, Low Level event flow and Data structure mapping between applications. Responsible for custom coding in Visual Basic, e-Script, and Java and design and build project status applications in Microsoft Access using Visual Basic. Design and build Siebel modules using e-Script for Accounts and Contacts functionality while integrating data from Siebel to back-end applications. Design and build Java applications to test data integration between front end and back end applications and Java applications to log data flow in WebMethods. Responsible for designing and configuring billing modules in Arbor/BP to present billing information from Arbor/BP to front end applications.

The wage offered is $75,780/year. The work schedule is Monday-Friday 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Engineering (any), Information Systems, Computer Science or Mathematics plus 3 years experience in the job offered or 3 years experience as a Senior Consultant, Consultant, or Systems Analyst. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited credentials evaluation service. Related experience must also include at least 1 year of implementation or testing of Siebel & WebMethods, custom coding in Visual Basic, e-Script, and Java, and designing and configuring billing modules in Arbor/BP

Please send your resume, referencing Job Order Number WEB439173 to the: PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE

Business Analyst sought by Fairfield, CT Outsource Service Provider Company. Duties: Analysis of new business requirements and product enhancement. Synthesis of new business requirements into detailed technical product development specifications. Monitoring and management of the entire cycle of ongoing development projects, including scheduling, code delivery, functional and overall testing, and deployment into our production environment. Analysis and resolution of technological and business-logic related issues. Management of our Quality Assurance team. Must have experience in and knowledge of databases SQL, N-tiered applications principles, ASP and VB programming Object-oriented analysis and design, Unified Modeling Language, Automated testing tools and bug tracking software. Must interact and communicate with the back office employees of our sister company who are based in Uzbekistan. Must also have experience in dealing with financial markets, banking principles and accounting. Job to be performed in Fairfield, CT and various unanticipated clients sites in the U.S as assigned. The selected candidate must be able to converse, read and write in the Russian language. Req. A Bachelors Degree or Equivalent, in either Applied Math/Comp. Sci., Business or Economics, and two years of experience in the job offered or related occupation., Hours: 9:00 AM to 5:00PM, Mon-Fri, 40 hrs/wk. Apply to, ATTN: BA Position, Foundation Source Philanthropic Services, Inc., 55 Walls Drive, 3rd Flr., Fairfield, CT 06824.

V.L.S. Systems is a software development and consulting co with multiple openings for Software Engineers, DBA's, Programmer Analysts, QA Testers, Financial Analysts and Project Managers to work at client sites in VA, IL, PA and other sites throughout the U.S. Individuals must have a minimum of a Bachelor Degree and two years relevant experience. We are seeking individuals with various combinations of the following skills i: Siebel, Oracle Apps, Peoplesoft, SAP, MS SQL, SCADA, DB2, Sybase, Abinitio, Tuxedo, OLAP, ETL development, Business Miner, VSAM, Mercator, Endevor, SeeBeyond. C#, C++, VC++, ASP.NET, .net technologies, Business objects, Java, J2EE, JNDI, Java Script, EJBs, Coldfusion, Perl, HTML, Cobol, CICS, MVS/ESA, Unisys, COM+, MTS, Cognos, Websphere, Weblogic, WSAD, MVC Architecture, Unix, Windows NT, embedded related tools. Apply to: V.L.S Systems, 9900 Main St, Suite. 304, Fairfax, VA 22031

Sr. Oracle DBA sought by office products distribution company in Broomfield, CO to work in Broomfield and other unanticipated job sites in the U.S. to at a senior level, design, install, maintain, and administer large (10+ CPUs) OLTP ORACLE relational database management systems in a UNIX clustered environment. Design the architecture and physical infrastructure for the ORACLE relational database management systems. Design and establish physical data parameters. Engage in performance tuning. Create and implement security and back-up and recovery procedures. Provide user support and training. Engage in project management and design related software applications as required. Requires master's or equivalent. Master's or foreign equivalent in comp. sci., elec. eng or related field or bachelor's or foreign equivalent in comp. sci., elec. eng or related field plus 5 yrs of software database administration experience;1 yrs Oracle database administration experience; 2 yrs exp. may be concurrent with the 5 yrs exp. required for the equivalence to a master's described above; working knowledge of designing database architecture and physical infrastructure, and performance tuning of large OLTP (10+ CPUs) ORACLE relational database management systems in a UNIX clustered environment.M-F; 8am-5pm;$92,500/yr. Respond by resume to Employment Programs, PO Box 46547, Denver, CO 80202 and respond to JON CO 5085898.

Radian Information Systems is seeking system analysts, software engineers & IT consultants to work on ERP, data warehouse, mainframe using SAP, PeopleSoft, VB, ASP, Java Script, VSS, VBScript, Web Methods, Cognos, Unix, Oracle etc. BS/MS with exp. Contact Info@RadiantInfoSys.com.EOE.

IT specialists wanted by ARWANO, Inc. for positions using Oracle, SQL, VB, C/C++, SAP, AS/400, RPGLE, COBOL/400, CL, SQL/400, Query/400, Oracle RDBMS, Developer 2000, Windows NT. Minimum is BS degree with IT experience. Travel maybe required. Apply at waseem@arwano.com, EOE.

SW Engineer - As member of s/ware development team, design & develop call control s/ware. Analyze s/ware requirements & functional specs. Design, code & test critical Call Control functionality includ'g: translations, CLASS 5/4 Services, AIN basic Call Model, messaging & associated protocols. Participate in design & code reviews. Maintain existing s/ware systems. Test & integrate telecom products. Must have B.S. in Computer Engineering, Comp Sci, EE or equiv, + 2 yrs exp in job offered or 2 yrs telecom s/ware development exp. Must have knowledge in at least one of the following telecom protocols: Call Processing or TCP/IP, as well as strong coding skills in C. 40hrs/wk. Salary: $78,000/yr. Send 2 copies of resume to: Case#200300201, Division of Career Services, Labor Certification Unit, 19 Staniford St., 1st FL, Boston, MA 02114.

COMPUTERS: HCL Technologies (MASS), Inc. has multiple openings at its corporate offices located in Quincy, MA and their branch office in Tallahassee, FL for the following positions: Software Engineers; Systems Analysts; Programmer Analysts; Project Managers; Account Managers/Sales Managers; Sales Engineers; Market Research Analysts; Business/Management Analysts; and Network Engineers. Salary commensurate with education and experience. All positions may involve travel or relocation to various sites throughout the U.S. Send resume to: HCL Technologies (MASS), Inc. Attn.: Rajiv Shesh, 400 Crown Colony Drive Suite # 500 Quincy, MA 02169 indicating the position you are applying for.

Infomerica is looking for system /programmer analysts, software /project engineers & computer consultants working at different sites (travel required) using C/C++, Oracle, Java, ASP, Unix, EJP, ERP, VB, SQL, etc. Must have BS/MS with 1-year exp. in IT fields. Send resumes to info@infomericainc.com. EOE.

Perk Systems, Inc. is looking for IT Analyst/Engineers to fill various positions using C/C++, Java, VB, Web Tech, Oracle, Unix-Sun Solaris, EJB, Rational Rose/UML, JSP, OOAD. Candidates must have MS/BS & IT experience. Apply at jobs@perksys.com. Travel maybe required. EOE.

Optimal Solutions Integration, Inc. has multiple openings for SAP and i2 Consultants, Software Analysts and System Analysts in our Irving, Texas and Washington, DC offices. Please send resumes with salary history and requirements to Optimal Solutions Integration, 8445 Freeport Parkway #240, Irving, TX 75063. Open to GreenCard holders or US Citizens.

Programmer/Analyst - Software Art Corp., a software-consulting firm, requires software professionals with demonstrated hands-on experience in the following: Client Server: MS VB .NET, ASP .NET C#/C++/Oracle /Sybase/Windows/Unix DBA: Sybase/SQL Server Internet Computing: JAVA/CORBA/XML, JAVA Websphere/Weblogic.

QA Testers: Manual/Automated Business Analyst, National Account Managers SAS Programmers. Send resume to:

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Q A

Forsee

continued from page 1

prime competitors, it's low. On the business side there is a fairly significant hurdle for AT&T to attach wireless into its product line when AT&T has not historically had access to that service. Sprint has enabled its customers with wireless access to other services, and we have enough lead time to take full advantage of that. We are not concerned that the deal will disrupt our own plans for our business customers.

Were you thinking that if it wasn't Sprint, AT&T would have just signed the deal with another carrier?

There is always that case when you think about wholesale business. That is not a primary reason to go down this path. That would have been part of a second, third or fourth set of issues. You can make the case that if not us then someone else, but that would be copping out on the strategic and financial discussion, which would be first and second in a competitive decision.

Bernard Ebbers is going to trial in November. Should he do jail time?

WorldCom committed fraud. That fraud rifled its way through this industry bigtime. I was here in the mid- to late '90s when we couldn't figure out where their margin percentages were coming from. I'll let the lawyers determine what the proper payment for that is. It caused a lot of disruption that sent the industry into a significant spiral, and there ought to be accountability for that.

Did it anger you personally?

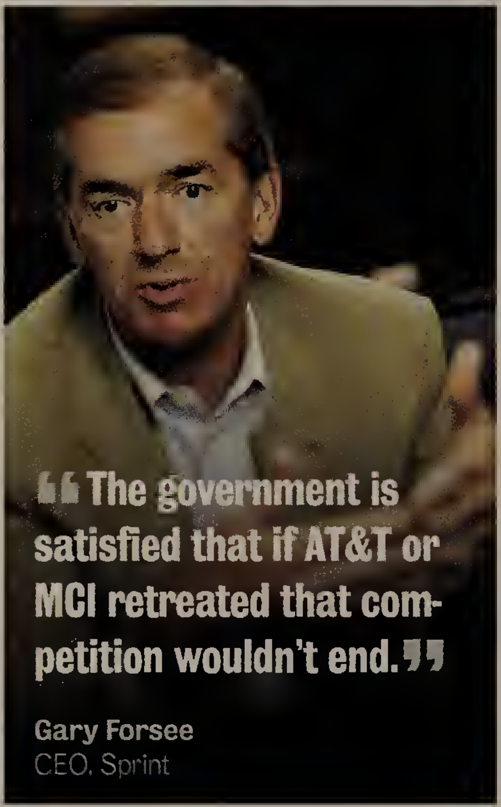
Absolutely. One thing I don't lose sleep about is our financial integrity and accounting integrity in this company. We're now all paying for companies that have disrupted that trust. It's the Enrons, the WorldComs, the Global Crossings, the Adelphias that created significant institutional distrust.

Sprint and AT&T recently said they would not actively go after new consumer voice customers. Is that waving the white flag?

There is a very significant contrast between Sprint and AT&T. We didn't get in that [local] business until July 2003. We have roughly 300,000 customers on our UNE-P offering. [Editor's note: AT&T has 4.7 million, and MCI has 3.5 million.] We always thought of using UNE-P as a transition to another product or service, which is wireless in our case. We never went after this space to attract new customers to Sprint. It was always an add-on to long-distance or wireless.

UNE-P aside, what should the government be doing to fix telecom?

I think to wait for the government, the FCC or for legislation, is a foolish pastime. It has been pretty clear over the past 10 years that the regulators were not going to be able to make all [competitive local exchange carriers], RBOCs and [interexchange carriers] happy. What the government has to pay attention to is overall competition. Is cable going to be able to gain traction and become a viable competitor to the RBOCs? I think that's probably the case. Wireless is a real competitive threat to the local-access business. The Vonage types, the power-line types, those are niches around the edge and will gain some share, but real competition will come from cable and wireless. The government is satisfied that if AT&T or MCI retreated that competition wouldn't end. There are plenty of other sources.



"The government is satisfied that if AT&T or MCI retreated that competition wouldn't end."

Gary Forsee
CEO, Sprint

RON BERG

On the business side it's a little trickier. Everyone still relies on that local last mile for access. There have been a lot of metropolitan-area networks built and there have been other alternative access technologies made available, but there is still a huge reliance on the local loop. There the government has to be careful that the loop prices do not go up extraordinarily.

How do you see any industry consolidation playing out?

There is no question that we're an industry in transition. There are a couple of players in significant dire straits, and their business models do not work. There are a number of factors that come into play. One would be around where does growth ultimately come from? Sprint is positioned today as an integrated service provider. We're going to have the highest growth of any integrated provider with our second-quarter results. Investors are looking for top-line and bottom-line growth. Second, what's the regulatory policy? There are no clear signals coming out of AT&T Wireless and Cingular. It's not clear that RBOCs buying long-distance companies or RBOCs buying integrated services companies will be approved. The third point is recognizing that there isn't a great record in any market of putting the same stuff together and creating shareholder benefit in the long term. It's so hard to do.

Industry-wide, do you see a lot of mergers and acquisitions happening?

In the last four years there has been one, AT&T Wireless and Cingular, and that's not done yet. You have a couple of companies losing revenue of about 15% to 20% per year. How do you go in and figure out where does that stop? I have been very clear about having no interest right now in adding to our long-distance portfolio. It wouldn't do anything for our mix of assets except take our revenue and growth percentages down, and it would be very distracting.

Why should large businesses choose Sprint?

Our network capabilities and our account team support have always been second to none in terms of taking our wire-line products and services to large businesses. Our frustration has been: Even though we have 98% of the Fortune 1000, we have a relatively small market share. Our opportunity to take advantage of that 98% penetration and bring wireless into that discussion is huge for us. That as much as anything is why companies should consider Sprint. We are at the nexus of companies that have had a good experience with Sprint on the wire-line side, and as we continue to make investments in wireless data we'll be able to take that experience to the next level. Whether customers are working off of our 1xRTT, EV-DO or IP VPN network. We have a window of time to make that work, which is why we realigned ourselves last year in a customer-centered fashion as opposed to down product lines.

What's your VoIP strategy, and how do you plan to boost the company's standing in that area?

On the consumer side we have clearly decided not to play in the Vonage space; our play is wireless. As we continue to invest in our network capacity and coverage, there will be a point where the customer will decide to cut their cord. We'll also be able to come in with a VoIP offering that will be part of wireless. Business is completely different. We are deploying the technology and the capability with IP enablement in our network.

Is it true that wireless services do not count or only count minimally toward an enterprise customer's minimum annual revenue commitments?

That's evolving, certainly for Sprint because one of our key strategies is to make the integration of wire-line and wireless work for customers. . . . I would probably fall short of saying that for every business customer we are making all services equally contributory and eligible for all deals, but for some that is the case. It all hasn't been stitched together. But certainly for large customers that's our strategy.

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Where is Sprint spending its research and development dollars?

In the past four or five years investors have become skeptical of big bets. In the past the company has made some big bets, some of which have paid off, like wireless, and some that have not, like our global ventures and [Integrated On-Demand Network]. In this environment there has to be a grand vision and a payoff that's pretty clear.

You're seeing us continue to be aggressive [with the likes of] IP capability that our local division is rolling out replacing circuit switched technology with packet switch gear. We're making significant investments on devices. Whether its classic R&D or innovation working with handset manufacturers like Sanyo and Samsung to be sure we're anticipating what the network can provide to customers.

Do you have a concern about price wars?

That's in the top three or four questions I get. This has been knockdown drag-out since the early 1990s. . . . When AT&T stood up and said 'We're not going to lose on price,' that probably put a lot of their customers on alert. ■

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BackSpin Mark Gibbs

Going, going . . . 321, gone

"321 Studios regrets to inform you that it has ceased business operations. . . . Despite 321 Studios' best efforts to remain in business, injunctions entered against 321 Studios by three U.S. federal courts earlier this year has resulted in 321 Studios no longer being able to continue operating the business. . . . The employees and those associated with 321 Studios sincerely appreciate your support of our company and products over the last couple of years."

— The home page of 321 Studios (www.321studios.com), Aug. 4, 2004

How do you kill off a company of 400 employees and projected earnings of more than $150 million in a few months? Easy, sic the dark forces of the entertainment industry and their cohorts on them.

In just a few months the financial damage caused by fighting the deep legal pockets of the Motion Picture Association of America (MPAA) in the guise of the Paramount and Fox movie studios in collaboration with computer games publishers Atari, Electronic Arts and Vivendi Universal Games, and aided and abetted by Macrovision, a purveyor of digital rights management and software licensing systems, managed to strangle the life out of 321 Studios, the publisher of a DVD cloning utility.

In effect, Goliath beat David to a pulp. Why would this have happened?

The complainants contended that 321's DVD copying software violated the ill-conceived 1998 Digital Millennium Copyright Act (DMCA). The DMCA prohibits attempts to circumvent any anti-piracy systems used to protect digital content. To copy a DVD requires copying the encrypted content, so gotcha! But 321 argued that to prohibit the sale of its utility would be to say, in effect, that consumers had no right of "fair use."

Fair use is an important concept in this argument. According to the Electronic Frontier Foundation (www.nwfusion.com, DocFinder: 3243): "The Copyright Act gives copyright holders the exclusive right to reproduce works for a limited time period. Fair use is a limitation on this right. . . . Fair use allows consumers to make a copy of part or all of a copyrighted work, even where the copyright holder has not given permission or objects to your use of the work."

In other words, fair use says you can make back-up and archive copies of copyrighted material for your personal use or change the format of the contents for personal use. But the DMCA says you can't do any of this if the content is locked down by an anti-piracy system.

While the conflict between the DMCA and the copyright act is worrying, killing off 321 was simply ridiculous. Dozens of publishers offer nearly identical tools for both fee and free.

Mind you, this kind of insane and reckless power wielding by the entertainment companies isn't unusual. Hank Barry and John Hummer, general partners in Hummer Winblad Venture Partners, are still being personally sued by Universal Music and EMI for their investments in Napster in early 2000! Again, what's the point?

Fred von Lohmann, senior intellectual property attorney at the Electronic Frontier Foundation, agreed there is no apparent point other than keeping lawyers employed and suggested there is another objective: "These lawsuits are about one thing: keeping innovators intimidated in an effort to chill the development of disruptive digital technologies."

This means the course of our industry can be changed and the employment of thousands of people affected not because some great wrong is being righted but because some lawyers need employment. Is peer-to-peer file sharing still around? Absolutely. Can you still get a DVD cloning tool? No problem. But Napster and 321 are history. Well done, all you corporate lawyers.

What can we do about this? We'll discuss that next week. Lawyer jokes to backspin@gibbs.com.

'NetBuzz News, insights, opinions and oddities

By Paul McNamara

Divergent views of e-voting

Electronic voting machines scare the bejesus out of IT security experts, while the general populace finds them no more threatening than an automated teller machine. If nothing is done to quell the concerns of the first group before the November presidential election, the second group might come to rue its misguided confidence in such technology.

That's the essence of a two-pronged survey conducted by the Ponemon Institute, a research outfit affiliated with Carnegie Mellon and the International Association of Privacy Professionals. The authors sought to compare "expert" attitudes about e-voting with prevailing "public" sentiment in the midst of a roiling nationwide debate about the increased use of touchscreen balloting machines that create no verifiable paper trail. It's important to note that the public portion of the survey polled about 3,000 individuals and was conducted using scientific methods, while the expert sample was just that, a sample culled from questioning 100 attendees at the 2004 Black Hat and DefCon conferences. Nevertheless, the two sets of findings offer a stark and alarming contrast:

- 75% of the public has confidence or significant confidence in e-voting, while 81% of the experts have none or little.
- 79% of the public believes e-voting is as likely or more likely to accurately record and report their votes as paper ballots, while half of the experts see e-voting as less likely to be accurate.
- Half of the public respondents consider e-voting to be more or much more secure than paper, whereas 83% of the experts say it's less or much less so.
- More than half of the experts expressed concern about system and programming errors and/or attempts to rig an election that's conducted via e-voting, while less than one-quarter of the public registered similar concerns.

What we have here is a failure to communicate; specifically, a failure on the part of those who know better to communicate their fears to those who don't. On the one hand, it's not exactly a revelation that many among us presume technology to be unrealistically reliable, if not infallible. Nor is it a surprise that those who do understand its limitations would be more concerned about e-voting than those who don't.

What matters most is what if anything is going to be done about it. So far, the answer looks to be not much, at least among the political class that holds the power to insist on the proper back-up mechanisms as more election officials in more states turn to touchscreen technology.

Which isn't to say no one is acting. While a majority of the public might be sanguine about e-voting, many who hold the more realistic view are taking matters into their own hands to ensure that their votes actually get recorded and counted: They're applying for absentee ballots. Florida's Palm Beach County has received more than 15,000 requests for absentee ballots for an Aug. 31 primary election, three times more than were sought four years ago. They're expecting 125,000 absentee votes in November, up from 47,000 in 2000.

It's a pity that people have to go that far — in part because absentee ballots present their own set of problems — but who can blame them . . . especially in Florida, where election officials were forced to admit recently that they had lost electronic records of a 2002 gubernatorial primary election that was decided by a few hundred votes.

Citizens wouldn't be tempted to go that far if only their elected leaders would do what they should have done from the start: Insist that touch-screen voting machines produce a paper trail that would assure voters that their intentions were accurately recorded and provide the mechanism for a recount if necessary.

One final point: What's up with the roughly one in five "experts" polled by Ponemon who apparently share few if any of their colleagues' concerns about e-voting? They might be right, of course . . . but they aren't.

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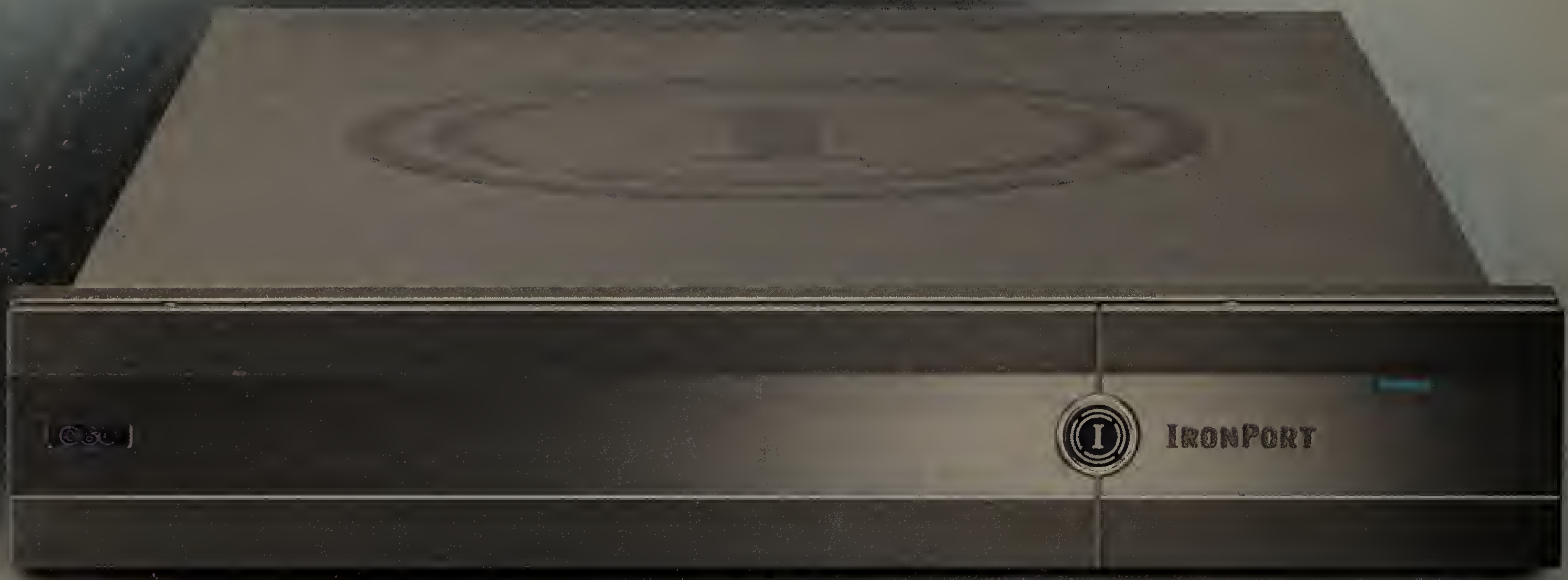

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